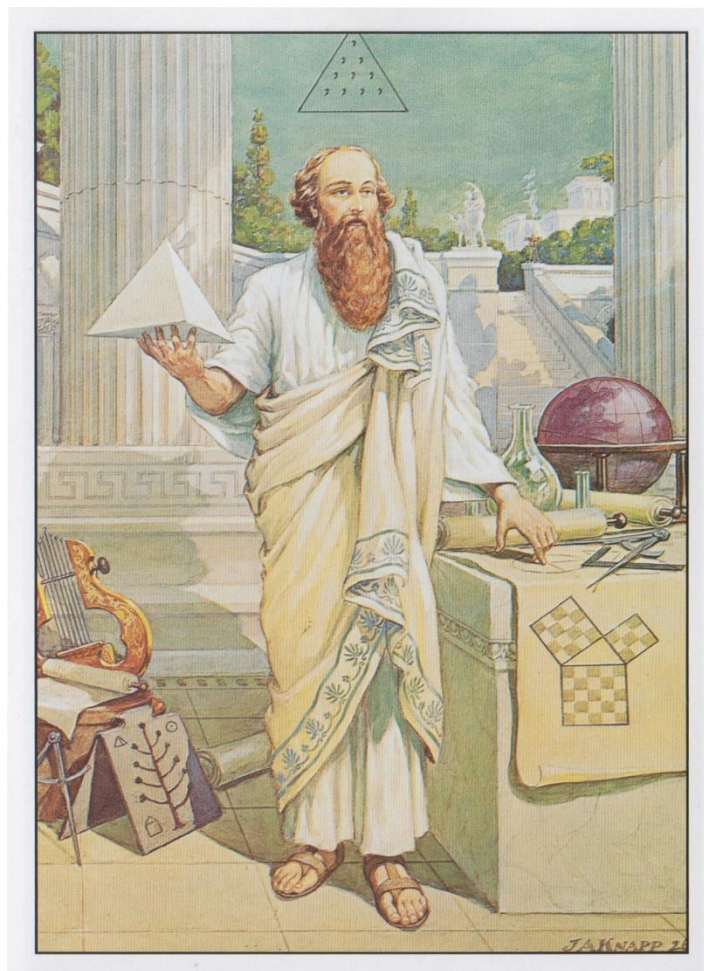


LEAVE A PRINT OF PYTHAGORAS



How is it possible that an Olympic sportsman is remembered as one of the most important mathematicians ever?



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PROJECT PLANNING TEMPLATE for CLIL and Content-Rich Environments

Identification of the GEP project:

Title	Leave a print of Pythagoras!
Authorship	Judith Planchart, Vanesa Rubio and Paz Estevan.
School	Institut Turó d'en Baldiri
Students' CEFR Level (A1, A2...)	A1 and A2
Grade	2 nd ESO
Content area(s)	Maths, Physical Education and English.
Number of sessions (4, 6 or 9)	9
Teacher(s) involved	Paz Estevan, Vanesa Rubio and Judith Planchart.
Key words	Pythagoras, Olympic Games and Pythagoras Theorem.

1. OUR PROJECT

Introduction: This project is meant to lead students to the knowledge and practical uses and benefits of the Pythagorean life and work. Students will learn the Pythagorean Theorem and they will also establish connections between the sports world at Pythagoras' time and ours. They will reflect as well on Pythagoras' embodiment of a balanced nourishing of both body and mind.

Driving question: How is it possible that an Olympic sportsman is remembered as one of the most important mathematicians ever?

Final product:

Students' oral presentation defending their wall design on Pythagoras to be painted on the school wall playground to "Leave a print of Pythagoras in the school".

2. GOALS

1. Know the biography and work of Pythagoras.

2. HOW DO YOU KNOW STUDENTS ARE MAKING PROGRESS? (assessment criteria)

1.1. They can summarize the biography of Pythagoras using appropriate language and grammar correctness on a written text.

1.2. They can orally explain Pythagoras' biography and work organizing ideas correctly respecting time and form agreed.

<p>2. Experience the Greek Olympic Games.</p>	<p>2.1. They can experience the Greek Olympic Games by practicing and playing as ancient athletes.</p> <p>2.2. They can compare the Greek Olympic Games to the current Olympic games by writing about the differences.</p>
<p>3. Design a mural for the playground wall.</p>	<p>3.1. They can draw a design synthesizing the life and work of Pythagoras.</p> <p>3.2. They can present their picture and persuade the class to choose it as the most suitable design to be drawn on the playground wall.</p>

3. CURRICULUM CONNECTIONS SPECIFIC COMPETENCES AND KEY CONTENTS

PHYSICAL EDUCATION		Foreign language curriculum	
Specific Competences	Key Contents	Specific Competences	Key Contents
<p>Dimensió esport:</p> <p>Competència 4. Posar en pràctica els valors propis de l'esport en situació de competició</p>	<p>5. Esports individuals. 6. Esports d'adversari. 7. Esports col·lectius.</p>	<p>Dimensió comunicació oral: Competència 2. Planificar i produir textos orals de tipologia diversa adequats a la situació comunicativa</p> <p>Dimensió comprensió lectora: Competència 5. Interpretar els trets contextuais, discursius i lingüístics d'un text i reconèixer la</p>	<p>CC5. Lectura en veu alta natural i expressiva.</p> <p>CC9. Cerca i gestió de la informació i la consulta lingüística:</p>

MATHS		seva tipologia per comprendre'l. Competència 6. Seleccionar i utilitzar eines de consulta per accedir a la comprensió de textos i per adquirir coneixement.	CC10. Criteris de selecció i valoració de la informació. CC12. Adequació, coherència i cohesió. CC13. Estratègies de revisió, correcció, reparació i presentació. CC16. Ús de diccionaris. CC18. Interpretació oral i lectura en veu alta, recitació, cant, representació.
Specific Competences	Key Contents		
<p>Dimensió resolució de problemes Competència 4. Generar preguntes de caire matemàtic i plantejar problemes.</p> <p>Dimensió connexions Competència 8. Identificar les matemàtiques implicades en situacions properes i acadèmiques i cercar situacions que es puguin relacionar amb idees matemàtiques concretes.</p> <p>Dimensió comunicació i representació Competència 11. Emprar la comunicació i el treball col·laboratiu per compartir i construir coneixement a partir d'idees matemàtiques.</p> <p>Competències 12. Seleccionar i usar tecnologies diverses per gestionar i mostrar informació, i visualitzar i estructurar idees o processos matemàtics.</p>	<p>CC1. Sentit del nombre i de les operacions.</p> <p>CC3. Càlcul (mental, estatimatiu, algorísmic, amb calculadora).</p> <p>CC4. Llenguatge i càlcul algebraic.</p> <p>CC9. Eines d'edició de documents de text, presentacions multimedia processament de dades numèriques.</p> <p>CC10. Relacions i transformacions geomètriques.</p> <p>CC11. Magnituds i mesura.</p>	<p>Dimensió expressió escrita: Competència 8. Produir textos escrits de diferents tipologies i formats aplicant estratègies de textualització.</p> <p>Competència 9. Revisar el text per millorar-lo segons el propòsit comunicatiu amb l'ajut de suports.</p> <p>Dimensió literària: Competència 10. Reproduir oralment, recitar i dramatitzar textos literaris adaptats o autèntics.</p> <p>Dimensió transversal actitudinal i plurilingüe Dimensió aprendre a aprendre Competència 2. Conèixer i posar en pràctica estratègies i hàbits que intervenen en el propi aprenentatge.</p>	

4. 21st CENTURY COMPETENCES

Collaboration	✓	Information, media and technology	✓
Communication	✓	Leadership & Responsibility	✓
Critical Thinking and Problem Solving	✓	Initiative & Self-direction	
Creativity & Innovation	✓	Social & Cross-cultural	✓
Others:			

5. KEY COMPETENCES

Communicative, linguistic and audiovisual competence	✓	Digital competence	✓
Mathematical competence	✓	Social and civic competence	
Interaction with the physical world competence	✓	Learning to learn competence	✓
Cultural & artistic competence	✓	Personal initiative and entrepreneurship competence	

6. CONTENT (Knowledge and Skills)

CONTENT-RELATED KNOWLEDGE	CONTENT-RELATED SKILLS
<p>Pythagoras' Theorem.</p> <p>Pythagoras' biography.</p> <p>Greek Olympic Games.</p>	<p>Proving Pythagoras' Theorem.</p> <p>Using Pythagoras' Theorem to solve problems of right triangles.</p> <p>Practising different events of the Greek Olympic Games.</p> <p>Comparing the ancient and the modern Olympic Games.</p>

7. REFERENCES

8. COMMENTS (optional)

9. ACKNOWLEDGEMENTS (optional)






We would like to thank our school Leadership, our school ICT mates and our two GEP training teachers.

Skills: R: reading , S:speaking, L: listening, W: writing, I: Interaction

Interaction: T-S: teacher-student, S-S: student-student, SG: small groups, WG: whole group, S-Expert, S-World

Assessment: PA: Peer assessment, SA: Self-assessment, TA: Teacher assessment, AT: Assessment tools

10. UNIT OVERVIEW

Session	Activities	Timing	Skills	Interaction	ICT	Assessment
						
1	<i>Kahoot!</i> to check what they know about Pythagoras and the Olympic Games	15'	R, S	S-S Small groups	<i>Kahoot!</i>	SA
	Brainstorming about that with the questions written on paper sheet.	10'	S,W,R,L	T-S		TA
	Watching a video of the Olympic Games and answering questions.	25'	L,R	T-S Small group	Video	PA
2	Jigsaw reading about Pythagoras' life and work.	20'	R, L, S	S-S Small groups		PA TA

	Talk in groups about their favourite Olympic sport.	15'	S,L	S-S		PA
	Prepare some questions to do to the sportswoman invited next session.	15'	R, S, L	S-S Small groups		TA
3	Historical introduction	5'	R	WG		
	Demonstration of Pythagorean Theorem by using realia	20'	I, S	SG		TA
	Questions to deduce the formula.	30'	I, S	SG		TA
4	Game show about exercises to implement the Pythagorean Theorem.	55'	R, I	SG	Power Point	AT
5	Quizizz about real situations to implement the Pythagorean Theorem.	30'	R,I	SG	Quizizz	AT
	Design a real activity in order to be solved by the other students.	30'	W,I	SG		TA
6	A conference about An experience in the Olympic Games by an Olympic sportswoman.	40'	L	Whole Group	Video, Power Point.	
	Ask questions to the Olympic sportswoman	10'	S, L, I	Small groups		Self-assessment

7	Warming up	5'	S, L	S-S Whole group		
	Play the "Olympic Maths Games"	40'	L, S	T-S S-S Small groups		Self-assessment Teacher assessment
	Stretching after playing sports	5'	S,L	T-S Whole group		
8	Design the draft of their drawing: Brainstorming	10'	S,L,W	Small groups		
	Draw their design	30'	S,L	Small groups		Teacher assessment
	Prepare their presentation	20'	S,L,W	Small groups		
9	Present their drawing to the rest of the groups.	25'	S,L	S-S Small groups		Teacher assessment
	Show their designs on a virtual wall at padlet with a written text on it.		S,L,W,R	Small groups	Padlet	Teacher assessment

11. SESSION PLANNING

SESSION 1: BACK TO THE ANCIENT GREECE TO MEET

Objectives of the session: Set a historical background for students to be able to contextualize Pythagoras in Ancient Greece and to be able to use past tenses.

Content-obligatory language for the session:
Past simple tenses, past continuous and time periods BC and AD.

Activities

include : Name and description; Assessment tool (if any); Material (including language support)



1.1 To introduce the project, there will be images related to the Olympic Games and Pythagoras projected on the screen. After trying to deduce the topics I will present the driving question.
Kahoot! quiz to check students' previous knowledge on the subject. Students will play a Kahoot to check their knowledge of the Olympic Games and of Pythagoras. They'll play in groups of three and will have 30 seconds to answer each question.

[Setting a context](#)

[The Olympic Games and Pythagoras, Kahoot!](#)

15'

R-S

SG

Kahoot

SA

1.2 After the *Kahoot!* game, we will do a brainstorming about what they have just learned in the game. In groups of three, they will answer the same questions, which will be written on a worksheet.

[Kahoot questions](#)

10'

R,S,
L,W

WG

TA

1.3	Watching a youtube video about the Olympic games and and answering questions on it. Students will watch a video called All About The Olympics and then they will have to answer some questions on it written on a worksheet. All About The Olympics video Questions About the Olympics	25'	L,S, R	SG	vid- eo	TA
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SESSION 2: PYTHAGORAS AND SPORTS

Objectives of the session: Get familiar with Pythagoras biography and practice the use of past tense together with time expressions. Talk about the sports they most like and get questions ready for an interview to a Catalan athlete, Mónica Azón.






Content-obligatory language for the session:
past simple tense, time connectors, wh- questions and yes-no questions, sentences to express interest and curiosity






Activities





include : Name and description; Assessment tool (if any); Material (including language support)








2.1	Jigsaw reading about Pythagoras' life and work. Pythagoras Jigsaw Reading	20'	R,L, S	SG	-----	TA PA
2.2	Talk about their favourite sport and sport experiences. My favourite sport	10'	S,L, R	SG		TA PA
2.3	Prepare an interview to an Olympic sportswoman visiting the school. Interview questions	15'	S,L, W,R	SG		TA

<h2>SESSION 3: LET'S LOOK FOR THE FORMULA OF THE PYTHAGOREAN THEOREM</h2> <p>Objectives of the session: Deduce the formula of the Pythagorean Theorem.</p>								
<p>Content-obligatory language for the session: Right triangle, square, legs, hypotenuse, length, area, perimeter.</p>								
<p>Activities <i>include : Name and description; Assessment tool (if any); Material (including language support)</i></p> <p>The material of the three activities are in the student's notes document.</p>								
3.1	<p>Read a brief historical introduction: The class is organized in groups of four. We read together the introduction. Student's notes</p>	5'	R	WG	-	TA		
3.2	<p>Demonstration of Pythagorean Theorem using realia in groups of four: They work in fours in order to deal with the pieces of the puzzle. Let's discuss</p>	20'	I-S	SG	-	TA		
3.3	<p>Questions to deduce the formula in groups of four: Once they have deduced the formula, they will answer the questions of the questionnaire. Let's discuss Rubric (TA)</p>	30'	I-S	SG	-	TA		

<h2>SESSION 4: THE PYTHAGOREAN GAME SHOW</h2> <p>Objectives of the session: Put into practice the Pythagorean Theorem.</p>								
<p>Content-obligatory language for the session: Right triangle, legs, hypotenuse, length, square root, equation, variable, term, right side and left side.</p>								
<p>Activities <i>include : Name and description; Assessment tool (if any); Material (including language support)</i></p>								
4.1	<p>Game show about exercises to implement the Pythagorean Theorem in groups of four.</p> <p>The students will be in groups of four. Each group will have a small board, a chalk and a rubber. The idea is, after projecting the first problem, the students will have some minutes to solve it and write on the board their result. If the group is right, the teacher will write 1 point on the template document. And if the group is wrong, the teacher will write 0 points. The winner will be the group which has more points.</p> <p>Show game Template Language support Let's discuss</p>			55'	R-I	SG	PPT	AT

<h2>SESSION 5: LET'S DESIGN A PROBLEM!</h2> <p>Objectives of the session: Put into practice the Pythagorean Theorem in real situations and design a problem based on a close situation.</p> <p>Content-obligatory language for the session: legs, hypotenuse, right triangle, square root...</p>					
<p>Activities <i>include : Name and description; Assessment tool (if any); Material (including language support)</i></p>					
					
5.1	<p>Quizizz about real situations to implement the Pythagorean Theorem in groups of four.</p> <p>Quizizz Language support</p>	30'	R-I	SG	Qui zizz AT
5.2	<p>Design a real activity in order to be solved by the other students in groups of four.</p> <p>Design a real problem Rubric (TA) Let's discuss</p>	30'	W-I	SG	- TA

<h2>SESSION 6: A CONFERENCE OF THE OLYMPIC GAMES</h2> <p>Objectives of the session: Listen to the experience of a Catalan Olympic Sportswoman who participated in the Olympic Games and won a Silver Olympic medal.</p>						
<p>Content-obligatory language for the session: The structure for making questions. Why, How, When, How much, How many, Who, What...</p>						
<p>Activities <i>include : Name and description; Assessment tool (if any); Material (including language support)</i></p>						
						
6.1	The Olympic sportswoman will explain her Olympic experience to the pupils. Mónica won a silver medal on sailing.	40'	L	T-S	video / PPT	
6.2	The pupils will ask some questions they've already prepared in a previous class to our "special guest" SELF-ASSESSMENT	10'	S,L	S-T		SA

SESSION 7: PLAYING OUR OWN OLYMPIC GAMES

Objectives of the session: Play our own “Olympic Maths Games”

Content-obligatory language for the session:

Verbs of action (warming up, moving forward, backwards, up and down, opening and closing, running, lateral steps, knees up, heels up, etc...)

Parts of the body: (like arms, legs, knees, heels, etc...)

Activities

include : Name and description; Assessment tool (if any); Material (including language support)



7.1

A warming up activity: The whole group has to run and I tell them different movements they have to understand and follow the instructions.

5'

L,S

T-S
whole
group

—

—

7.2

They will play “the numbers game”: All the group is running around. If I say 2, they should join in pairs. If I say 3, they should join in groups of 3... to make finally groups of 6

5'






L

T-S
Whole
group






—

—

7.3	<p>The Olympic Maths Games: They are in groups of 6 and they have to solve some cooperative challenges:</p> <ol style="list-style-type: none"> 1. The “noughts and crosses” relay. It’s a relay between two groups, but at the end of the way, there is the “noughts and crosses” game (with some bibs and rings). So everytime that a member of one group arrives there, he will move the bib to win. 2. “Just on your hands” The group has to be on the floor, but just on their hands! They have to stay like this during 10”. 3. The “jumping rope” challenge. They have to jump with a collective rope but they have to jump all the members of the group, even the two who are moving the rope. They have to try to jump as much as they can, jumping three people at the same time! <p>THE CHALLENGES TEACHER ASSESSMENT AND SELF ASSESSMENT</p>	30'	L,S	T-S Small groups	—	TA SA
7.4	<p>Stretching after playing sports. Every group will lead a stretching exercise to the rest of the group</p> <p>TEACHER ASSESSMENT</p>	5'	S,L	S-S Whole group	-----	TA

SESSION 8: DESIGNING THE DRAFT OF PYTHAGORAS								
Objectives of the session: Design the draft about Pythagoras to be presented								
Content-obligatory language for the session: Vocabulary referred to drawing materials. Verbs of painting, designing, drawing, imagining... The past tense: We painted, we did that, We used that, We chose that....								
Activities <i>include : Name and description; Assessment tool (if any); Material (including language support)</i>								
8.1	They are divided in free groups of four. (They choose their group of work) They have to think about a draft to draw over all they've learned in the previous sessions about Pythagoras, his Theorem and his Olympic experience. With all this information, they have to do a brainstorming about what they want to draw.	10'	S,L, W	S-S Small groups	—	PA and SA		
8.2	Design the draft of their drawing. They can do it in different ways: using a sheet of paper or the computer with an ICT tool ... They can do it the way they want!	30'	S,L	S-S Small groups	ICT tool to draw			
8.3	Prepare their presentation: (It should be a 6' presentation) Follow the guideline to present their detailed online: (there is some language support too) Upload the draft and a brief presentation on a Padlet. A GUIDELINE FOR A GOOD PRESENTATION AND LANGUAGE SUPPORT	10'	S,L, W	S-S Small groups	Padl et			

8.4	Individually, they do self-assessment and peer assessment of the session 8: SELF AND PEER ASSESSMENT	5'	R,W	T-S	—	
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SESSION 9: PYTHAGOREAN WALL PRINT								
Objectives of the session: Defend a group drawing that synthesises their knowledge about Pythagoras so far.								
Content-obligatory language for the session: Structures to express conviction and opinion and to persuade an audience to choose one's product.								
Activities <i>include : Name and description; Assessment tool (if any); Material (including language support)</i>								
9.1	Group presentation of a picture about Pythagoras. Show their picture on a group padlet and describe it together with their defense of it.			45'	S, L, R	SG	Padlet	TA
9.2	Choose the drawing which will be printing Pythagoras in the school wall. Rubric for draft (TA)			15'	S, R			TA

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SESSION 1.1

Where? When? What? Who?

<p>1</p> 	<p>4</p> 
<p>2</p> 	<p>5</p> 
<p>3</p> 	<p>6</p> 

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Links to the images above:

1

https://www.google.com/search?q=pythagoras+and+philosophers&safe=strict&source=lnms&tbm=isch&sa=X&ved=0ahUKEwi76drCmcrgAhUixYUKHfmVC4wQ_AUIDigB&biw=1920&bih=937#imgrc=u2CA1HXCFU9aOM:

2

https://www.google.com/search?q=Olympic+games+ancient&safe=strict&source=lnms&tbm=isch&sa=X&ved=0ahUKEwjcovjwmcrgAhWnBWMBHUzPC4cQ_AUIDigB&biw=1920&bih=937#imgrc=d6OD7tVG4BzAFM:

3

https://www.google.com/search?q=pythagores+theorem&safe=strict&source=lnms&tbm=isch&sa=X&ved=0ahUKEwiX4fS8msrgAhXCxoUKHYVYCYkQ_AUIDigB&biw=1920&bih=937#imgrc=xWeHY64zudX8M:

4

https://www.google.com/search?q=ancient+greece+map&safe=strict&source=lnms&tbm=isch&sa=X&ved=0ahUKEwiQIKnsm8rgAhWRHRQKHQV1DbEQ_AUIDigB&biw=1920&bih=937#imgrc=UFyz2jFhqjp53M:

5

https://www.google.com/search?q=pythagoras+triangles&safe=strict&hl=ca&authuser=0&source=lnms&tbm=isch&sa=X&ved=0ahUKEwje_9WFoMrgAhVD0RoKHZwpAGcQ_AUIDigB&biw=1920&bih=937#imgrc=XRkUFf0xL6yakM:

6

https://www.google.com/search?safe=strict&hl=ca&authuser=0&biw=1920&bih=937&tbm=isch&sa=1&ei=o0BtXOmWAYSoa5Doq6gB&q=anillas+olimpicas&oq=anillas+&gs_l=img.3.0.0l3j0i30l7.36402.37828..39689...0.0..0.90.565.8.....1....1..gws-wiz-img.....0i67j0i10i30.GCJ4P2TLZL0#imgrc=Jq6HmOHi8wmy3M:

SESSION 1.2

Kahoot! QUESTIONS ABOUT OLYMPIC GAMES AND PYTHAGORAS

<https://create.kahoot.it/details/olympic-games/adb5143c-887a-41f2-bdec-0f2b10292bd0>

1. How often are the current Olympic games held?

- a) Each year
- b) Every 2 years
- c) Every 4 years
- d) Every 10 years

2. Who is the founder of the Modern Olympic Games?

- a) Baron de Güell
- b) Jacques Rousseau
- c) Pierre de Coubertin
- d) Napoleón Bonaparte

3. When did the first Olympic Games take place?

- a) In Greece
- b) In Rome
- c) In Spain
- d) In Australia

4. What god from Greek mythology was honored in the ancient Olympic games?

- a) God Apollo
- b) God Poseidon
- c) God Zeus
- d) God Ares

5. When did the first Olympic Games take place?

- a) In year 10 B.C.
- b) In 1896
- c) In the fifteenth century
- d) In 776 B.C.

6. What do the five Olympic rings mean?

- a) The 5 basic colours

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- b) The 5 fingers of one hand
- c) The 5 continents
- d) The 5 sons of God Zeus

7. Who formulated the Pythagorean Theorem?

- a) We don't know for sure.
- b) Pythagoras.
- c) Babylonian mathematics.
- d) Thales of Miletus.

8. On what geometric shape is the Pythagorean Theorem applied?

- a. On right triangles.
- b. On rectangles.
- c. On squares.
- d. On scalene triangles.

9. What century did Pythagoras live in?

- a. He lived in the 6th century BC.
- b. He lived in the 2nd century AD.
- c. He lived in the 20th century.
- d. He lived in the 15th century AD.

10. Where was Pythagoras born?

- a) He was born in Greece.
- b) He was born in Italy.
- c) He was born in Egypt.
- d) He was born in Spain.

11. Is Pythagoras only famous for the Pythagorean Theorem?

- a) Yes, he is. It took him a lot of time and work to prove it.
- b) No, he isn't. He also won in boxing at ancient Olympic Game.
- c) No, he isn't. He was also a Greek priest.
- d) No, he isn't. He also invented the Greek alphabet.

Keys:

- 1. c, 2. c, 3. a, 4. c, 5. d, 6. c, 7. a, 8. a, 9. a, 10. a, 11. B**

SESSION 1.3

QUESTIONS FOR THE VIDEO: "ALL ABOUT THE OLYMPIC GAMES"

<https://www.youtube.com/watch?v=uSf7-LsmU3Y&feature=youtu.be>

1. Where did the first Olympic Games take place?

- a) In Greece
- b) In Rome
- c) In Spain
- d) In Australia

2. When did the first Olympic Games take place?

- a) In year 10 BC
- b) In 1896
- c) In the fifteenth century
- d) In 776 BC

3. The Olympic Games were done in the honour of

- a) God Apollo
- b) God Poseidon
- c) God Zeus
- d) God Ares

4. How often are the Olympics celebrated?

- a) Each year
- b) Every 2 years
- c) Every 4 years
- d) Every 10 years

5. Which event was the only one in the original Olympic Games?

- a) A long race
- b) A 5 km race
- c) A chariot race
- d) A short race across the stadium

6. What other events were added later? (fill in the gaps)

Boxing, _____, _____, throwing the javeline and discos and _____.

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7. Who is the founder of the Modern Olympic Games?

- a) Baron de Güell
- b) Jacques Rousseau
- c) Pierre de Coubertin
- d) Napoleon Bonaparte

8. When did women begin to participate in the Olympic Games?

- a) In the 20th century
- b) In 1800
- c) In 1900
- d) In 1700

9. What other Olympic Games appeared? (fill in the gap)

Winter Olympics and _____.

10. What are the medals made of? (fill in the gaps)

Bronze, s_____ and g_____.

11. What do the 5 Olympic rings represent?

- a) The 5 basic colours
- b) The 5 fingers of one hand
- c) The 5 inhabited continents in the world
- d) The 5 sons of God Zeus

12. What's the most important thing in the Olympics?

- a) To win
- b) To be the best
- c) To take part
- d) To lose

END!

Keys:

1. a, 2.d, 3. c, 4. c, 5. d, 6. wrestling, long jump, chariot races, 7. Pierre de Coubertin, 8. In 1900, 9.The Parallel Olympics (called Parallympics now), 10. Silver and gold (the gold medal is actually made of silver covered with a thin layer of gold), 11. c , 12.c

SESSION 2.1.

JIGSAW READING

Topic: Pythagoras of Samos

Exercise 1 Students get one of the five parts of the text. Students with the same fragment get in groups of five to read it. They make sure they understand the content of their fragment. They can ask the mates in their group questions for a better understanding: what does this word/ expression mean?, can you give me an example to understand this sentence/ word?, do you know any synonyms/ expression for this sentence/ word?

Exercise 2 Once they have analysed and understood their fragment, students get together with four other students who have read the remaining four parts of the text and they will explain their group the content of their fragment following the right order of the original text. They can use the same questions they used in step one for a better understanding of the text.

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STUDENT A

1. You will read a fragment of a text together with four mates. You must comment on it and make sure you understand its content. You may want to use some of these useful questions:

What does this word/ expression mean?,

Can you give me an example to understand this sentence/ word?,

Do you know any synonyms/ expression for this sentence/ word?

Pythagoras was born in the Ionian island of Samos around 575 a.C. In Samos and all along the Ancient Greece gymnastics and body care were very important from a young age. All cities trained their best young people to participate in the Olympic games. The winners were honoured and statues and poems were created for them. So Pythagoras wanted to represent his city at the Olympic games, celebrated each four years. With his father he travelled to Tyre where he visited the sacred temple of Melquart, the god of bravery and physical and inner strength, protector of sports and founder of the Olympic games.

Pythagoras' father taught him how to count. Poor people and slaves didn't study. They didn't use boards to write on, but the sea shore and the house yards of the rich ones. When he was young he learnt the alphabet to represent numbers with letters and number zero didn't exist yet. They used wax tablets to write on. Papyrus were only used by priests and priestesses. They learnt to recite and wanted to be like the ancient heroes they read about. The best way was to participate in the Olympic games and win in the name of their city. He got ready for all sport disciplines though he was very Good at boxing. He claimed to be descendent of god Apollo. He was very interested in being with wise men, thinkers. Pherecydes of Syros was a big influence on him. They shared their idea of the eternity of the soul, fraternity.

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STUDENT B

1. You will read a fragment of a text together with two mates. You must comment on it and make sure you understand its content. You may want to use some of these useful questions:

What does this word/ expression mean?,

Can you give me an example to understand this sentence/ word?,

Do you know any synonyms/ expression for this sentence/ word?

At that time philosophers were the thinkers who wanted to know and understand things far from a mythological explanation. Philosopher means “person who loves wisdom”. Pythagoras also travelled to Miletus where he met Thales of Miletus. People say he calculated the height of the Keops pyramid by measuring its shadow and with no tools. Thales used geometry to calculate the heights of pyramids and also the distance of ships from the shore. Pythagoras learnt geometry so well with him that he became also an inventor of theorems. With these two sages geometry was not only a means to measure grounds and Project buildings but it became a treasure for proving things with clear and real evidence.

Pythagoras came back to Tyre and then he travelled to Egypt. There he learnt a lot about alchemy and medicine. But Egypt was constantly attacked and the Persians captured Pythagoras and took him to Babylon. The West and the East met at Babylon where Pythagoras lived a wide variety of knowledge. There he talked about geometry and astrology with the magicians and he taught them Greek and alchemy. He showed them the rectangle triangle theorem.

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STUDENT C

1. You will read a fragment of a text together with two mates. You must comment on it and make sure you understand its content. You may want to use some of these useful questions:

What does this word/ expression mean?,

Can you give me an example to understand this sentence/ word?,

Do you know any synonyms/ expression for this sentence/ word?

After Egypt Pythagoras went back to Samos. It was very different. There was an army and Polycrates was leading it. Everybody received him happily and he wanted to found a school to teach everything he knew and also music, which was very important in Greece. The Pythagorean School became very successful along the Mediterranean Sea. He taught astronomy and foresaw that the Earth was a sphere and he also defended that everything is measurable: the Earth, the sky, physical phenomena, even music. All Pythagoras' disciples were so happy with all they were learning. They became philosophers too and when they came back to their places they spread all their ideas in assemblies and other places where important decisions were taken. They aimed at harmony, fraternity and justice. But tyrants like Polycrates of Samos didn't like it because he decided all and for all at Samos. He didn't want democracy unlike Pythagoras.

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STUDENT D

1. You will read a fragment of a text together with two mates. You must comment on it and make sure you understand its content. You may want to use some of these useful questions:

What does this word/ expression mean?,

Can you give me an example to understand this sentence/ word?,

Do you know any synonyms/ expression for this sentence/ word?

Pythagoras moved away from Samos again. He travelled to Croton in Italy. It was founded by Hercules, a god like Melqart, but the Italian one. The citizens in Croton learnt a lot from Pythagoras. A lot of young boys and girls wanted to become Pythagorean. The Pythagorean philosophers spread their knowledge, their love for knowledge and their lifestyle in neighbouring cities. The Pythagorean helped Croton win the war against Sybaris and because of this they became part of the government of Croton and other neighbouring cities. One day Hippasus, a disciple of Pythagoras, discovered an incommensurable length. That meant they couldn't measure it neither with a finite number nor with a fraction nor with the sum of fractions. This number had no end after the decimal separator, it was endless, it was the "irrational" number. He made the Pythagorean angry and envious so they throw Hippasus to the sea and he drowned.

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STUDENT E

1. You will read a fragment of a text together with two mates. You must comment on it and make sure you understand its content. You may want to use some of these useful questions:

What does this word/ expression mean?,

Can you give me an example to understand this sentence/ word?,

Do you know any synonyms/ expression for this sentence/ word?

The richest citizens in Croton never liked the Pythagorean and Cylon of Croton led a revolt against Pythagoras. Pythagoras went to Delos to see his teacher Pherecydes that soon died. Meanwhile in Croton the Pythagorean School was burnt and the Pythagorean were killed. Cylon of Croton had the power everywhere and he wanted to kill Pythagoras. Running away from Cylon's soldiers in Metapontum Pythagoras came to a bean field. He stopped and didn't run through the field because running through it was against his teachings. So he was captured, although this is only one of the many legends there are about Pythagoras's death.

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SESSION 2.2. My favourite sport

Use some of these prompts to talk about your favourite sport in groups of four.

I	like love adore enjoy prefer	football tennis table tennis padlet basketball boxing golf swimming running	because	it is... it makes me feel... when I play it I feel I like/ love...a
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Some vocabulary you may need to use:

I	can can't	play	it this sport tennis...	outdoors indoors whenever with friends alone
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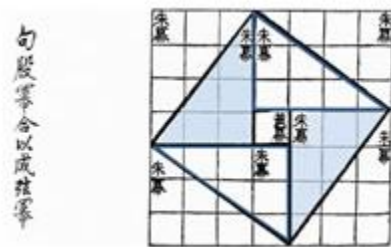
SESSION 2.3. Interview

Work in groups to decide what you would like to know about the woman who will visit us and who participated in the Olympics. Think about some fields in her life, her studies and work, her feelings and sensations, her interests and hobbies, etc. List down your questions.

Field	Questions
Personal: life, family, friends, town	Where do/did you? How do/ did you...? When do/did you...? Have you got....? Did you have....? Do/ did you...?
Academic: studies, work, colleagues, aims	Where do/ did you...? Do/ did you...?
Emotional: feelings, emotions, sensations, opinions, wishes, aims	How do/did you feel? Do/ did you feel/ think....? Would you like?
Other	

INTRODUCTION

The relationship between the side lengths of right triangles was found to be of such high importance that several cultures took the time to study it and put it to use. Today, we call this relationship the Pythagorean Theorem.



Most mathematicians believe that the Chinese were one of the first civilizations to observe the relationship known today as the Pythagorean Theorem.

It is also said that Mayans, Indians and Egyptians used the Pythagorean Theorem to construct their buildings and pyramids.



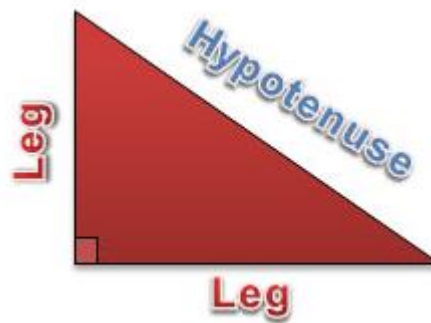
However, Greek mathematicians, including Pythagoras, were the first Western mathematicians to record the Pythagorean Theorem. Euclid, an ancient Greek mathematician, used triangles to prove

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the Pythagorean Theorem to be true.

In this lesson, you will examine different ways to represent the Pythagorean Theorem. As you do so, you will need to keep the following vocabulary terms in mind:

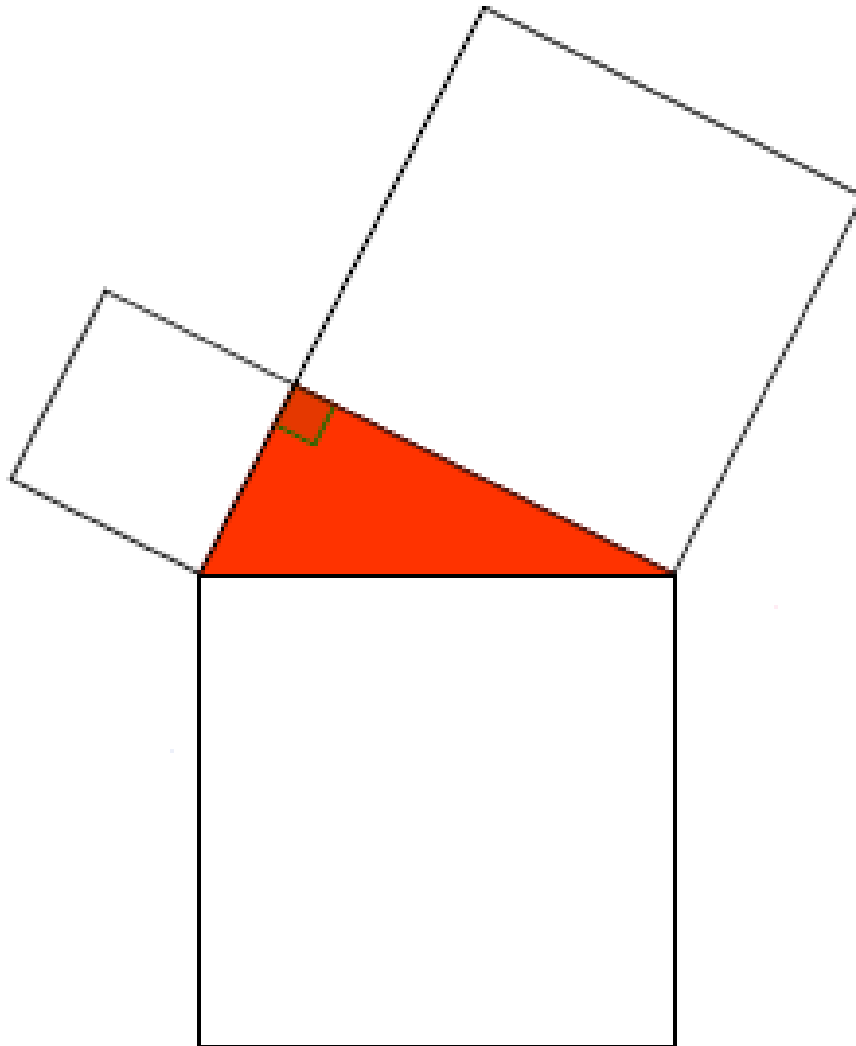
A **right triangles** has two **legs**, which are the sides adjacent to the right angle. The third side, which is opposite the right angle, is called the **hypotenuse**.



Pythagorean Theorem demonstration

As we said previously, the Pythagorean Theorem can be shown geometrically.

How does the area of the largest square, alongside the hypotenuse, compare to the areas of the two smaller squares, alongside the legs? Use the shapes to think about this question.



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Can you finish the sentence in order to explain what happens?

The area of the largest square is equal to

In order to end the sentence you can take the following words:

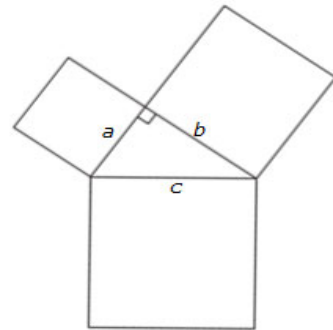
of – two – the – smaller – sum – squares – of – the – areas - the

How do you find the area of a square if the side length is “a”?

.....

With your previous knowledge, can you write a formula connecting the

$$..... + =$$



If $a = 3$ and $b = 4$, what is the area of the square A and square B?

What will be the area of the square C?

What will be the side length of square C?

What will be the perimeter of each square?

If $a = 5$ and $b = 12$, what are the areas of all three squares?

What will be the side length of square C?

Video <https://matematicascercanas.com/2016/06/06/demostraciones-teorema-de-pitagoras/>

SESSION 3.2.

LET'S DISCUSS!!!

EXPRESSING OPINION

- I think that...
- I'm pretty sure that...
- In my opinion, ...

EVALUATING

- That's fine, but the problem is ...
- Yes, but consider ...
- The main thing is ...

EXPRESSING DOUBTS

- I have my doubts about that...
- It depends ...
- I'm not sure ...

AGREEING

- I agree.
- I totally agree.
- I see what you mean.
- I'm with you there.

DISAGREEING

- I'm sorry I don't agree there.
- Ok, but that's not the point.

TIME TO THINK

- Let me think.
- Wait a second.

INTERRUPTING

- Can I interrupt here?
- May I interrupt for a moment?
- I have a question on that ...
- I have something to say at this point ...

GETTING SOMEONE TO TALK

- And what about you?
- What would you say about this?

ACTION STRATEGY

- Why don't we ...?
- How about ...?
- I suggest that ...
- Let's start with ...

COMMUNICATION CONTROL – SPEAKER

- See what I mean?
- You know what I mean?
- Are you with me?
- Are you following me?
- Is that clear?

COMMUNICATION CONTROL – LISTENER

- Sorry?
- Sorry, I didn't get the last part.
- Would you mind repeating that?
- Could you say that again, please?
- That's clear now.

SESSION 3.3.

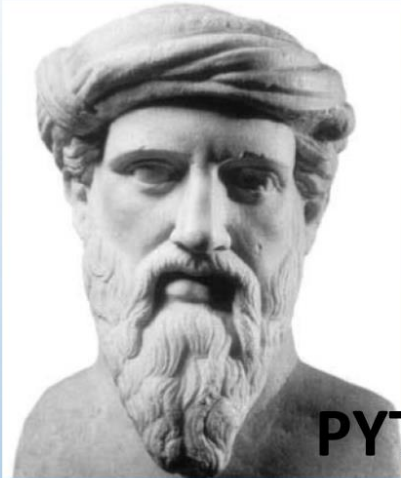
RUBRIC FOR TEACHER ASSESSMENT. "LET'S LOOK FOR THE FORMULA OF THE PYTHAGOREAN THEOREM"

Group number:

Members of the group:

ASPECTS	LEVEL 1	LEVEL 2	LEVEL 3	SCORE
COLLABORATION	They haven't collaborated with the rest of the group.	They have tried to collaborate with the teammates. Sometimes they've failed.	They've successfully collaborated.	
SPEAKING	They haven't tried to speak in English.	They've been trying to speak in English with some difficulties.	They've been speaking in English all the time.	
ATTENTION	They haven't paid attention to all the challenges' instructions. The teacher had to warn them for their attention.	They've paid attention, but sometimes they were talking.	They've paid attention to all the challenges' instructions.	
MOTIVATION	They were not motivated with the activity. They were bored.	They were enjoying the activities sometimes.	They really enjoyed the whole class.	

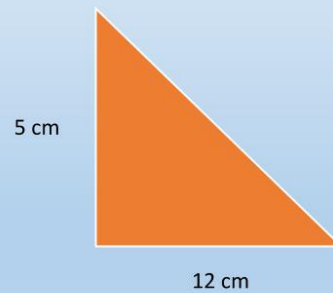
SESSION 4.1.



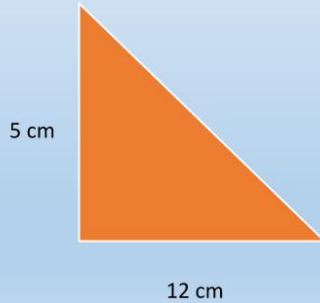
PYTHAGOREAN THEOREM



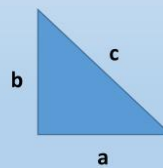
1. Find the missing length of the triangle.



1. Find the missing length of the triangle.



Pythagorean Theorem

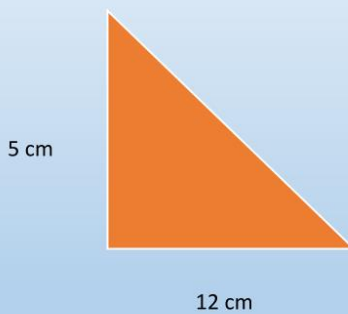


$$c^2 = b^2 + a^2$$



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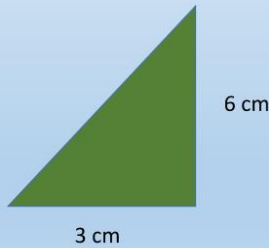
1. Find the missing length of the triangle.



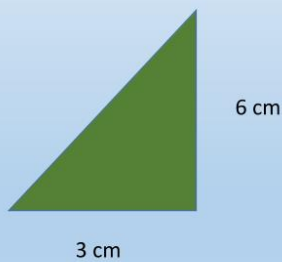
- $c^2 = a^2 + b^2$
- $c^2 = 12^2 + 5^2$
- $c^2 = 144 + 25$
- $c^2 = 169$
- $c = \sqrt{169}$
- $c = 13 \text{ cm}$**

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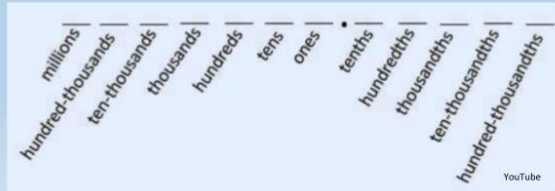
2. Find the missing length of the triangle. Round your answer to the nearest tenth.



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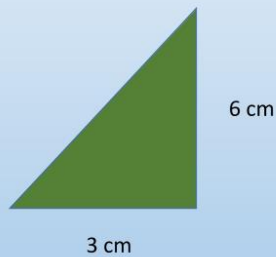
<https://teameacc.org>



YouTube

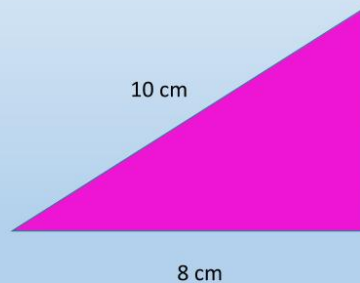
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2. Find the missing length of the triangle. Round your answer to the nearest tenth.

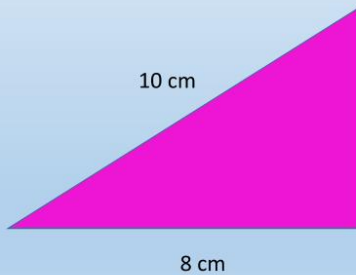


- $c^2 = a^2 + b^2$
- $c^2 = 6^2 + 3^2$
- $c^2 = 36 + 9$
- $c^2 = 45$
- $c = \sqrt{45}$
- $c = 6,7082 \dots$
- $c = 6,7 \text{ cm}$**

3. Find the missing length of the triangle.

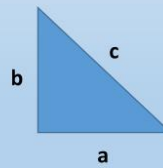


3. Find the missing length of the triangle.



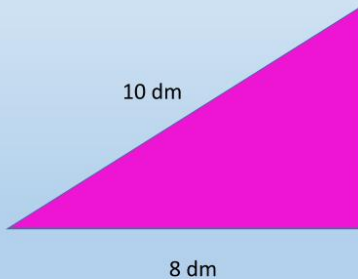
Pythagorean Theorem

$$c^2 = b^2 + a^2$$



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3. Find the missing length of the triangle.



$$c^2 = a^2 + b^2$$

$$10^2 = 8^2 + b^2$$

$$c^2 = a^2 + b^2$$

$$100 = 64 + b^2$$

$$100 - 64 = b^2$$

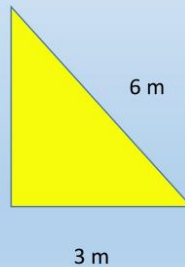
$$36 = b^2$$

$$6 = b$$

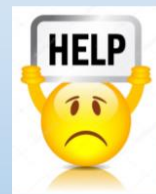
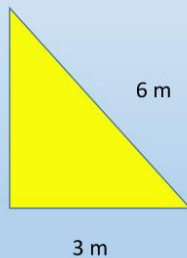
$$\mathbf{b = 6 \text{ dm}}$$

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4. Find the missing length of the triangle. Round your answer to the nearest thousandths.



4. Find the missing length of the triangle. Round your answer to the nearest thousandths.



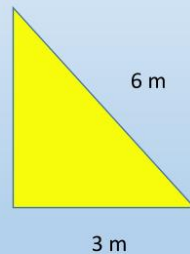
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millions
hundred-thousands
ten-thousands
thousands
hundreds
tens
ones
tenths
hundredths
thousandths
ten-thousandths
hundred-thousandths

YouTube

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4. Find the missing length of the triangle. Round your answer to the nearest thousandths.



$$c^2 = a^2 + b^2$$

$$6^2 = 3^2 + b^2$$

$$36 = 9 + b^2$$

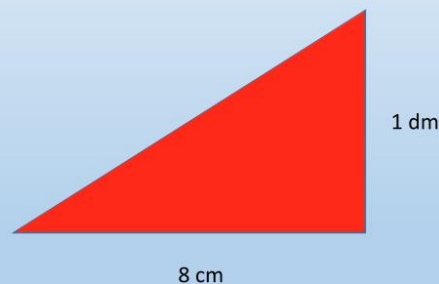
$$36 - 9 = b^2$$

$$27 = b^2$$

$$5,19615 \dots = b$$

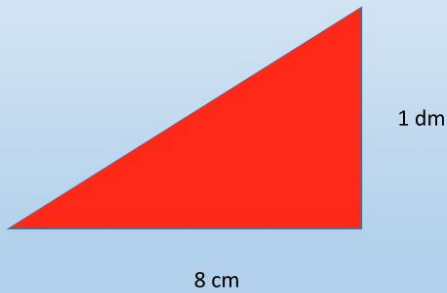
$$\mathbf{b = 5,196 \text{ dm}}$$

5. Find the missing length of the triangle. Round your answer to the nearest hundredths.

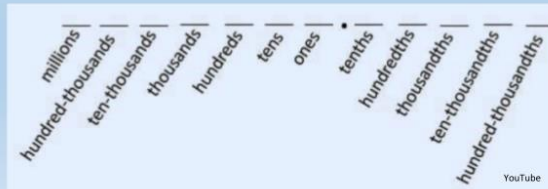


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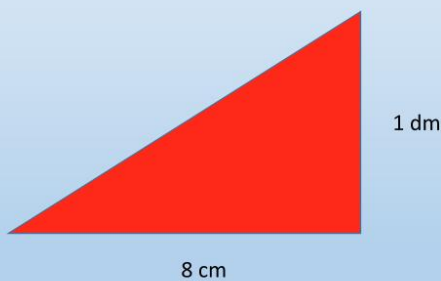
5. Find the missing length of the triangle. Round your answer to the nearest hundredths.



<https://sp.depositphotos.com>



5. Find the missing length of the triangle. Round your answer to the nearest hundredths.



The two quantities must have the same units.

For example, in centimeters.

$$c^2 = a^2 + b^2$$

$$c^2 = 8^2 + 10^2$$

$$c^2 = 64 + 100$$

$$c^2 = 164$$

$$c = \sqrt{164}$$

$$c = 12,80624 \dots$$

$$c = 12,81 \text{ cm}$$

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6. Peter leaves school to go home. He walks 6 blocks north and then 8 blocks west. How far is Peter from the school?



www.westminsterpublicschools.org



<https://es.123rf.com>



www.shutterstock.com

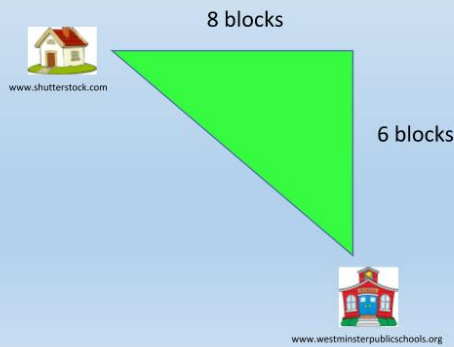
6. Peter leaves school to go home. He walks 6 blocks north and then 8 blocks west. How far is Peter from the school?



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Generació Plurilingüe (GEP) – 2018-2021

6. Peter leaves school to go home. He walks 6 blocks north and then 8 blocks west. How far is Peter from the school?



$$\begin{aligned}c^2 &= a^2 + b^2 \\c^2 &= 8^2 + 6^2 \\c^2 &= 64 + 36 \\c^2 &= 100 \\c &= \sqrt{100} \\c &= 10 \text{ blocks}\end{aligned}$$

7. The distance between town A and B is 40 miles, between B and C is 28 miles. The three towns form a right angle at B. Find the distance between town A and town C rounded to the nearest tenth.



www.colourbox.com



www.colourbox.com



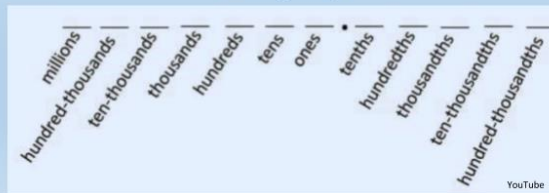
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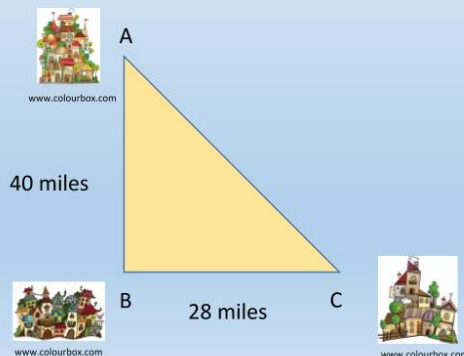
7. The distance between town A and B is 40 miles, between B and C is 28 miles. The three towns form a right angle at B. Find the distance between town A and town C rounded to the nearest tenth.



www.blackdoginstitute.org.au



7. The distance between town A and B is 40 miles, between B and C is 28 miles. The three towns form a right angle at B. Find the distance between town A and town C rounded to the nearest tenth.



$$b^2 = a^2 + c^2$$
$$b^2 = 28^2 + 40^2$$
$$b^2 = 784 + 1600$$
$$b^2 = 9444$$
$$b = \sqrt{9444}$$

$$b = 97,2 \text{ miles}$$

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8. Two hikers leave a cabin at the same time, one heading due south and the other headed due west. After one hour, the hiker walking south has covered 2,8 miles and the hiker walking west has covered 3,1 miles. At that moment, what is the shortest distance between the two hikers? Round your answer to the nearest hundredth.



<https://vectortoons.com>

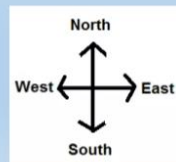


<https://graphicriver.net>

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<http://nancyspoint.com>



www.mathbootcamps.com



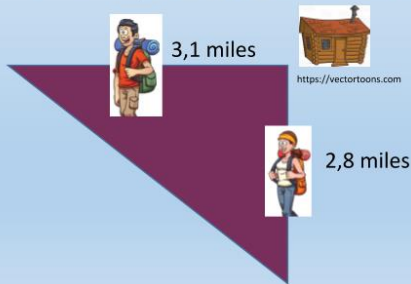
<https://vectortoons.com>



<https://graphicriver.net>

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$$c^2 = a^2 + b^2$$

$$c^2 = 3,1^2 + 2,8^2$$

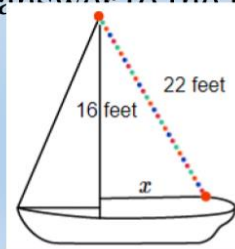
$$c^2 = 9,61 + 7,84$$

$$c^2 = 17,45$$

$$c = \sqrt{17,45}$$

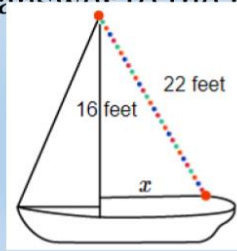
$$c = 4,18 \text{ miles}$$

9. Randy wants to attach a 22 foot string of lights to the top of the 16 foot mast of his sailboat. How far from the base of the mast should be attach the end of the light string? Round your answer to the nearest tenth.



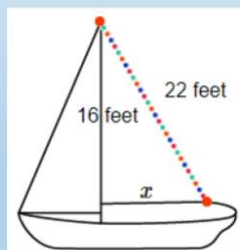
Generació Plurilingüe (GEP) – 2018-2021

9. Randy wants to attach a 22 foot string of lights to the top of the 16 foot mast of his sailboat. How far from the base of the mast should be attach the end of the light string? Round your answer to the nearest tenth.



<https://courses.lumenlearning.com>

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<https://courses.lumenlearning.com>

$$c^2 = a^2 + b^2$$

$$22^2 = b^2 + 16^2$$

$$484 = b^2 + 256$$

$$484 - 256 = b^2$$

$$228 = b^2$$

$$\sqrt{228} = b$$

$$\mathbf{b = 15,1 \text{ feet}}$$

Generació Plurilingüe (GEP) – 2018-2021

10. You want to buy a 30 inch television. You know that TV and monitor screens are measured across the diagonal, and you also know that this screen is 18 inch high. How wide is the screen horizontally?



www.vectorstock.com

10. You want to buy a 30 inch television. You know that TV and monitor screens are measured across the diagonal, and you also know that this screen is 18 inch high. How wide is the screen horizontally?

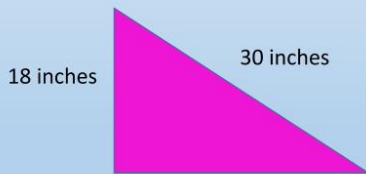


www.vectorstock.com

Do you know that...
1 inch = 2,54 centimeters

Generació Plurilingüe (GEP) – 2018-2021

10. You want to buy a 30 inches television. You know that TV and monitor screens are measured across the diagonal, and you also know that this screen is 18 inches high. How wide is the screen horizontally?



$$\begin{aligned}c^2 &= a^2 + b^2 \\30^2 &= b^2 + 18^2 \\900 &= b^2 + 324 \\900 - 324 &= b^2 \\576 &= b^2 \\\sqrt{576} &= b\end{aligned}$$

$$b = 24 \text{ inches}$$

11. Tyger has a rectangular garden measuring 12 m by 20 m that he wants to split diagonally from corner to corner using a fence. How long does his fence need to be? Round your answer to the nearest hundredth.



<https://es.123rf.com>

Generació Plurilingüe (GEP) – 2018-2021

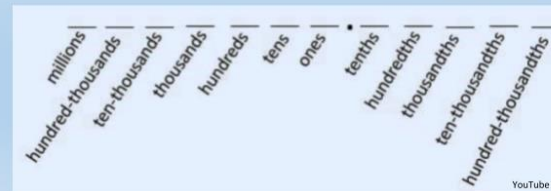
11. Tyger has a rectangular garden measuring 12 m by 20 m that he wants to split diagonally from corner to corner using a fence. How long does his fence need to be? Round your answer to the nearest hundredth.



<http://fundacionhelp.org>



<https://es.123rf.com>



YouTube

11. Tyger has a rectangular garden measuring 12 m by 20 m that he wants to split diagonally from corner to corner using a fence. How long does his fence need to be? Round your answer to the nearest hundredth.



<https://es.123rf.com>

$$c^2 = a^2 + b^2$$

$$c^2 = 12^2 + 20^2$$

$$c^2 = 144 + 400$$

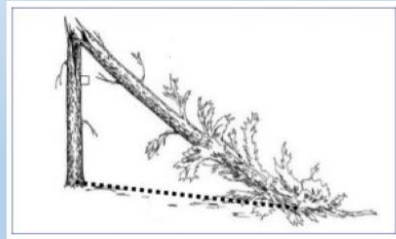
$$c^2 = 544$$

$$c = \sqrt{544}$$

$$c = 23,32 \text{ m}$$

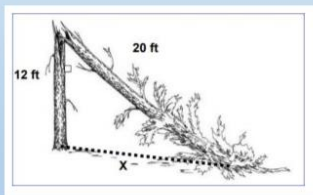
Generació Plurilingüe (GEP) – 2018-2021

12. Lightning struck a tree, causing it to break and crash to the ground. The tree broke off 12 feet above the ground and the broken part was 20 feet long. If the broken tree formed a right triangle, could be able to determine how far away the tip of the fallen tree is?



<https://u.osu.edu>

12. Lightning struck a tree, causing it to break and crash to the ground. The tree broke off 12 feet above the ground and the broken part was 20 feet long. If the broken tree formed a right triangle, could be able to determine how far away the tip of the fallen tree is?



<https://u.osu.edu>

$$c^2 = a^2 + b^2$$

$$20^2 = 12^2 + b^2$$

$$400 = 144 + b^2$$

$$400 - 144 = b^2$$

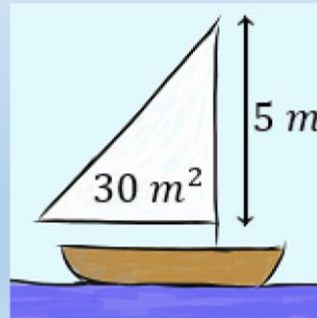
$$256 = b^2$$

$$\sqrt{256} = b$$

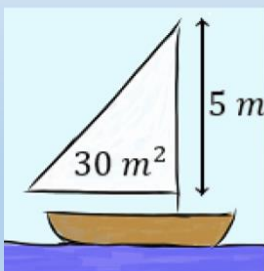
$$b = 16 \text{ feet}$$

Generació Plurilingüe (GEP) – 2018-2021

which has an area of 30 m^2 and a leg measuring 5 m .



13. Find the remaining measures of a sail which has an area of 30 m^2 and a leg measuring 5 m .



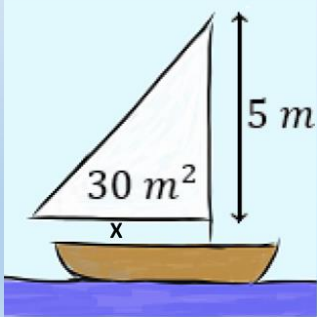
www.demploymentattorney.com

Area of a triangle:

$$Area_{triangle} = \frac{1}{2} \cdot \text{base} \cdot \text{height}$$

Generació Plurilingüe (GEP) – 2018-2021

which has an area of 30 m^2 and a leg measuring 5 m .



$$A_{\text{triangle}} = \frac{1}{2} \cdot \text{base} \cdot \text{height}$$

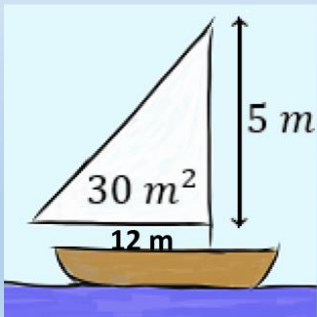
$$30 = \frac{1}{2} \cdot x \cdot 5$$

$$30 = \frac{5x}{2}$$

$$\frac{30 \cdot 2}{5} = x$$

$$12 \text{ m} = x$$

which has an area of 30 m^2 and a leg measuring 5 m .



$$c^2 = a^2 + b^2$$

$$c^2 = 12^2 + 5^2$$

$$c^2 = 144 + 25$$

$$c^2 = 169$$

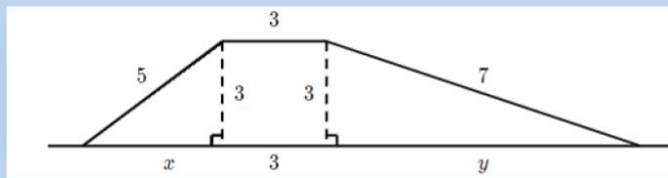
$$c = \sqrt{169}$$

$$c = 13 \text{ m}$$

Generació Plurilingüe (GEP) – 2018-2021

14. Un airplane takes off, levels off and lands according to the diagram shown below. All the measurements listed are in kilometres.

What is the horizontal distance from the plane's starting position to its finishing position? Round your answer to the nearest tenth.



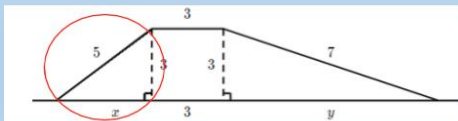
www.khanacademy.org



http://bestairplanephotos2013.blogspot.com

14. Un airplane takes off, levels off and lands according to the diagram shown below. All the measurements listed are in kilometres.

What is the horizontal distance from the plane's starting position to its finishing position? Round your answer to the nearest tenth.



www.khanacademy.org

Step 1

$$c^2 = a^2 + b^2$$

$$5^2 = 3^2 + x^2$$

$$25 = 9 + x^2$$

$$25 - 9 = x^2$$

$$16 = x^2$$

$$x = 4 \text{ km}$$

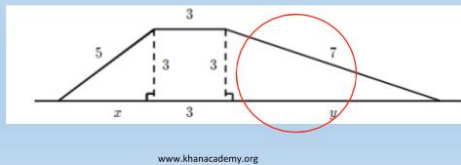


http://bestairplanephotos2013.blogspot.com

Generació Plurilingüe (GEP) – 2018-2021

14. Un airplane takes off, levels off and lands according to the diagram shown below. All the measurements listed are in kilometres.

What is the horizontal distance from the plane's starting position to its finishing position? Round your answer to the nearest tenth.



www.khanacademy.org

Step 2

$$c^2 = a^2 + b^2$$

$$7^2 = 3^2 + y^2$$

$$49 = 9 + y^2$$

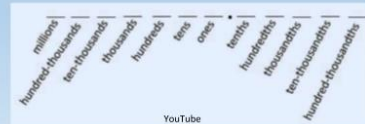
$$49 - 9 = x^2$$

$$40 = x^2$$

$$x = 6,3 \text{ km}$$



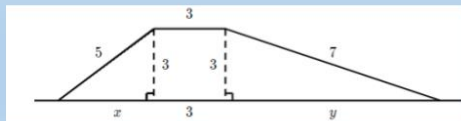
<https://es.gofundme.com>



YouTube

14. Un airplane takes off, levels off and lands according to the diagram shown below. All the measurements listed are in kilometres.

What is the horizontal distance from the plane's starting position to its finishing position? Round your answer to the nearest tenth.



www.khanacademy.org

Step 3















$$4 + 3 + 6,3 = 13,3 \text{ km}$$



<http://bestairplanephotos2013.blogspot.com>

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Template

															Total	
Grou p 1																
Grou p 2																
Grou p 3																
Grou p 4																
Grou p 5																
Grou p 6																

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LANGUAGE HELP

HOT AIR BALLON



www.123rf.com

ROPE / STRING



https://pngimage.net

WIND



www.123rf.com

WIRE



www.123rf.com

LADDER



www.123rf.com

WALL



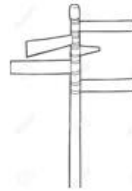
www.123rf.com

BOTTOM ↔ TOP



www.shutterstock

POLE



www.123rf.com

KITE



www.shutterstock

HUT



www.shutterstock

FARM



www.pinterest.com

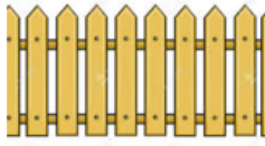
TREASURE



www.123rf.com

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FENCE



www.123rf.com

CARDINAL POINTS



www.amazon.com

RHOMBUS



www.vectorstock.com

HIKERS



<https://graphicriver.net>

CABIN



<https://vectortoons.com>

SAILBOAT



www.vectorstock.com

LIGHTNING



<http://clipart-library.com>

AIRPLANE



<http://bestairplanephotos2013.blogspot.com>

Generació Plurilingüe (GEP) – 2018-2021
LET'S DISCUSS!!!

EXPRESSING OPINION

- I think that...
- I'm pretty sure that...
- In my opinion, ...

EVALUATING

- That's fine, but the problem is ...
- Yes, but consider ...
- The main thing is ...

EXPRESSING DOUBTS

- I have my doubts about that...
- It depends ...
- I'm not sure ...

AGREEING

- I agree.
- I totally agree.
- I see what you mean.
- I'm with you there.

DISAGREEING

- I'm sorry I don't agree there.
- Ok, but that's not the point.

TIME TO THINK

- Let me think.
- Wait a second.

INTERRUPTING

- Can I interrupt here?
- May I interrupt for a moment?
- I have a question on that ...
- I have something to say at this point ...

GETTING SOMEONE TO TALK

- And what about you?
- What would you say about this?

ACTION STRATEGY

- Why don't we ...?
- How about ...?
- I suggest that ...
- Let's start with ...

COMMUNICATION CONTROL – SPEAKER

- See what I mean?
- You know what I mean?
- Are you with me?
- Are you following me?
- Is that clear?

COMMUNICATION CONTROL – LISTENER

- Sorry?
- Sorry, I didn't get the last part.
- Would you mind repeating that?
- Could you say that again, please?
- That's clear now.

SESSION 5.1. QUIZZZ

Quizizz

Pythagoras

Name : _____

Class : _____

Date : _____

1. A hot air balloon is tied to a rope. There was no wind yesterday and the balloon was 51 m high. It's a windy day today, and the balloon's vertical is 45 m away from where it is tied. How high is the balloon today?



- a) 24 m b) 22 m
 c) 68 m d) 66 m

2. A 24 m high antenna will be secured with four metal wires that run from the top to the ground, anchored at 18 m from the base. How many metres of metal wire are required?



- a) 120 m b) 30 m
 c) 60 m d) 16 m

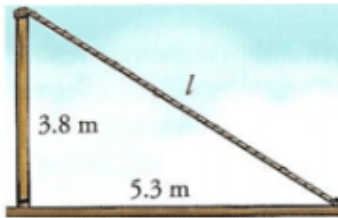
3. Calculate the height that we can reach with a 3 m ladder leaning against a wall if the bottom of the ladder is 70 cm from the wall.



- a) 291.72 cm b) 291.72 m
 c) 308.06 cm d) 308.06 m

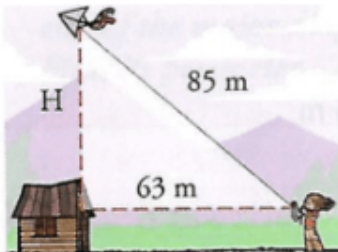
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4. To support a 3.8 m high pole, we hold it with a rope, that is anchored at 5.3 m from the base of the pole. How long is the rope?



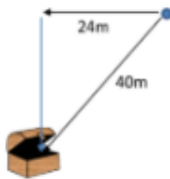
- a) 6.52 m long, plus a little extra to tie it to the pole and to anchor it to the ground.
- b) 3.69 m
- c) 6.52 m
- d) None of the above is correct.

5. The string of a kite is 85 m long, and the kite is flying over a hut that is 63 metres away from Lucia. How high above the ground is the kite?



- a) 57 m, plus the height of Lucia's hand.
- b) 57 m
- c) 57.06 m
- d) 57.06 m, plus the height of Lucia's hand.

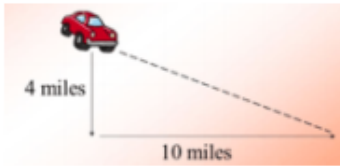
6. Captain is on a geo-cache hunt. His gps tells him that he is 40 m away from the treasure. He walks 24 m due west. The gps compass now tells him that the treasure is due south from where he is standing. How far south does he need to go to find it?



- a) 32 m
- b) 30 m
- c) 51.22 m
- d) 50 m

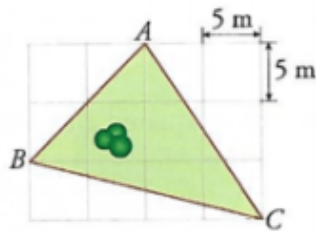
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7. Suppose that you drive 4 miles south and the 10 miles east. How far are you away from your starting point?



- a) 10.77 miles b) 9.17 miles
 c) 9 miles d) 12 miles

8. Mary's farm can be seen in an aerial photo. If the side of each square is 5 m, how many metres long is the surrounding fence?



- a) 56.4 cm b) 45.3 cm
 c) 64.2 cm d) 41.9 cm

9. Find the side of a rhombus with diagonals that are 6 cm and 8 cm long.

- a) 5 cm b) 10 cm
 c) 5.29 cm d) 6 cm

10. The diagonal of a rectangle is 10 cm long, and one of the sides is 8 cm. Find the length of the other side.

- a) 6 cm b) 12.81 cm
 c) 36 cm d) 2 cm

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SESSION 5.2.

GROUP

Design a real situation where a measure must be calculated using the Pythagorean Theorem.

- You have to write one proposal per group.
- Your situation must be different from the examples done previously.
- The problem and the measures must be realistic.

1. PROBLEM DEFINITION.

2. DRAW OF THE SITUATION WITH ALL THE KNOWN MEASURES AND MARK THE UNKNOWN MEASURE.

3. APPLICATION OF THE PYTHAGOREAN THEOREM IN ORDER TO FIND OUT THE UNKNOWN MEASURE.

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4. ANSWER TO THE PROBLEM.

RUBRIC FOR TEACHER ASSESSMENT. “DESIGN A REAL ACTIVITY IN ORDER TO BE SOLVED BY THE OTHER STUDENTS”

Group number:

Members of the group:

ASPECTS	LEVEL 1	LEVEL 2	LEVEL 3	SCORE
COLLABORATION	They haven't collaborated with the rest of the group.	They've tried to collaborate with the teammates. Sometimes they've failed.	They've successfully collaborated.	
TIMELINESS	They haven't handed it.	They've handed late.	They've handed it on time.	
CREATIVITY	They haven't think about a situation different from the ones worked previously.	They've been trying to think about a new situation but they haven't got any ideas.	They've a lot of new and original ideas.	
MOTIVATION	They haven't been motivated with the activity. They were bored.	They've enjoyed the activity sometime.	They've really enjoyed during the whole class.	

Generació Plurilingüe (GEP) – 2018-2021
LET'S DISCUSS!!!

EXPRESSING OPINION

- I think that...
- I'm pretty sure that...
- In my opinion, ...

EVALUATING

- That's fine, but the problem is ...
- Yes, but consider ...
- The main thing is ...

EXPRESSING DOUBTS

- I have my doubts about that...
- It depends ...
- I'm not sure ...

AGREEING

- I agree.
- I totally agree.
- I see what you mean.
- I'm with you there.

DISAGREEING

- I'm sorry I don't agree there.
- Ok, but that's not the point.

TIME TO THINK

- Let me think.
- Wait a second.

INTERRUPTING

- Can I interrupt here?
- May I interrupt for a moment?
- I have a question on that ...
- I have something to say at this point ...

GETTING SOMEONE TO TALK

- And what about you?
- What would you say about this?

ACTION STRATEGY

- Why don't we ...?
- How about ...?
- I suggest that ...
- Let's start with ...

COMMUNICATION CONTROL – SPEAKER

- See what I mean?
- You know what I mean?
- Are you with me?
- Are you following me?
- Is that clear?

COMMUNICATION CONTROL – LISTENER

- Sorry?
- Sorry, I didn't get the last part.
- Would you mind repeating that?
- Could you say that again, please?
- That's clear now.

SESSION 6.2.

Name and surname:

AFTER THE CONFERENCE OF THE OLYMPIC GAMES....

Evaluate yourself answering these few questions:

LOCK “YES” OR “NO” AT THESE QUESTIONS...

1. Do you think the conference has been interesting? YES NO

Why?

Because...

2. Have you paid attention to our special guest? YES NO
3. Have you learnt things you didn't know before listening to the conference about the Olympics? YES NO

If you answered YES, write an example:

4. Have you prepared interesting questions for the conference? YES NO

Write one of the questions you've prepared:

5. Have you asked any of your questions to Mónica? YES NO

If you've answered YES, What question have you asked?

Generació Plurilingüe (GEP) – 2018-2021

6. Have you found interesting any questions from your classmates? YES NO

If you've answered YES, write the question you've liked from your classmates:

7. Do you think your behaviour has been good during the conference? YES NO

THANK YOU FOR YOUR ANSWERS!

Nom i cognoms:

AFTER THE CONFERENCE OF THE OLYMPIC GAMES....

DESPRÉS DE LA XERRADA SOBRE ELS JOCS OLÍMPICS...

Evaluate yourself answering these few questions: (*Avalua't contestant aquestes preguntes*)

LOCK “YES” OR “NO” AT THESE QUESTIONS...

ENCERCLA “SÍ” O “NO” en aquestes preguntes...

1. Do you think the conference has been interesting? YES NO

Creus que la xerrada ha sigut interessant? SI NO

Why? (perquè?)

Because... (perque..)

2. Have you payed attention to our special guest? YES NO

Has estat atent a la nostra convidada? SI NO

3. Have you learnt things you didn't know before listening to the conference about the Olympics? YES NO

Has après coses que no sabies abans d'escoltar la xerrada sobre els Jocs Olímpics?

If you answered YES, write an example: (Si has contestat que sí, escriu un exemple)

4. Have you prepared interesting questions for the conference? YES NO

Has preparat preguntes interessants per la xerrada? SI NO

Generació Plurilingüe (GEP) – 2018-2021

Write one of the questions you've prepared: (*Escriu una de les preguntes que has preparat:*)

5. Have you asked any of your questions to Mónica? YES NO

Has preguntat alguna de les teves questions? SI NO

If you've answered YES, What question have you asked? (*Si has contestat que sí, quina pregunta has fet?*)

6. Have you found interesting any questions from your classmates? YES NO

Has trobat interessant alguna pregunta dels teus companys? SI NO

If you've answered YES, write the question you've liked from your classmates:

Si has contestat que Sí, escriu la pregunta que t'hagi agradat dels teus companys:

7. Do you think your behaviour has been good during the conference? YES NO

Creus que el teu comportament has sigut bo durant la xerrada? SI NO

THANK YOU FOR YOUR ANSWERS!

GRÀCIES PER LES TEVES RESPOSTES!

SESSION 7.3.

CHALLENGE 1:

“THE JUMPING ROPE”

MAIN GOAL: EVERYONE OF THE GROUP HAS TO JUMP.

RULES:

1. THE ROPE HAS TO BE ALWAYS IN MOVEMENT. IT CAN'T STOP.
2. EVERY TIME THE ROPE HAS TO TOUCH THE FLOOR.
3. TRY TO JUMP 3 PEOPLE AT THE SAME TIME, AS MANY TIMES AS THEY ARE ABLE TO.
4. REMEMBER HOW MANY JUMPS YOU ARE ABLE TO DO.

CHALLENGE 2:

“THE NOUGHTS AND CROSSES RELAY”

MAIN GOAL: TO WIN A NOUGHTS AND CROSSES GAME, PLAYING A RELAY

RULES:

1. THE TWO TEAMS ARE IN TWO LINES.
2. AFTER “READY, STEADY AND GO” THEY SHOULD RUN, ONE BY ONE, TO THE “NOUGHTS AND CROSSES” GAME, AND MOVE ONE BIB.
3. THEN YOU RUN AND TOUCH YOUR PARTNER WHO WILL RUN AND DO THE SAME
4. THE TEAM WHO AFFORD 3 BIBS IN “LINE” WILL WIN THE CHALLENGE!

CHALLENGE 3:

MAIN GOAL: THE TEAM WILL HAVE TO BE ON THE FLOOR, BUT JUST ON THEIR HANDS!

RULES:

Generació Plurilingüe (GEP) – 2018-2021

1. THE TEAM WILL HAVE TO BE JUST ON THEIR HANDS ON THE FLOOR FOR 5”

TEACHER ASSESSMENT AND SELF ASSESSMENT

RUBRIC FOR TEACHER ASSESSMENT. “THE OLYMPIC MATH GAMES”

Group number:

Members of the group:

ASPECTS	LEVEL 1	LEVEL 2	LEVEL 3	SCORE
COLLABORATION	They didn't collaborate with the rest of the group.	They tried to collaborate with the teammates. Sometimes they failed.	They collaborated successfully.	
RESPECT	They didn't respect the other teams at all. They wanted to win overall.	They wanted to win, sometimes too much. They respected the others, but not always.	They played respecting the others all the time.	
ATTENTION	They didn't pay attention to all the challenges' instructions. The teacher had to warn them for their attention.	They payed attention, but sometimes they were talking.	They payed attention to all the challenges' instructions.	
MOTIVATION	They were not motivated with the activity. They were bored.	They enjoyed the activities sometimes.	They really enjoyed the whole class.	

Generació Plurilingüe (GEP) – 2018-2021
RUBRIC FOR SELF- ASSESSMENT. “THE OLYMPIC MATH GAMES”

Name and surname:

ASPECTS	LEVEL 1	LEVEL 2	LEVEL 3	SCORE
COLLABORATION	I didn't collaborate with the rest of the group too much..	I tried to collaborate with my teammates. Sometimes, not always..	I collaborated successfully.	
RESPECT	I didn't respect the other teams at all. I just wanted to win overall.	I wanted to win, sometimes too much. I respected the others, but not always.	I was playing respecting the others all the time.	
ATTENTION	I didn't pay attention to the explanation of the challenges. The teacher had to warn for my attention.	I've payed attention, but sometimes I was talking with my mates.	I've payed attention when the teacher explained everything.	
MOTIVATION	I wasn't motivated with the activities. They were bored.	I was enjoying the activities sometimes.	I really enjoyed the whole class.	

SESSION 7.4.

RUBRIC FOR TEACHER ASSESSMENT FOR STRETCHING.

Group number:

Members of the group:

ASPECTS	LEVEL 1	LEVEL 2	LEVEL 3	SCORE
STRETCHING TECHNIQUE	The group doesn't exhibit proper stretching technique for any stretches	The group exhibits proper stretching technique for a couple stretches	The group exhibits proper stretching technique for all stretches	
LEADING STRETCHING	The group doesn't know any stretching exercise to show to the rest of the class.	The group knows some stretching exercises to show to the rest of the class.	The group knows perfectly different stretching exercises to show to the rest of the class.	
ATTENTION DURING STRETCHING	The group is often off task and disruptive during stretching instructions.	The group is sometimes off task but listens to others' instructions.	Student is on task and attentively listens to all class instructions.	

SESSION 8.3.

A GUIDELINE FOR A GOOD PRESENTATION: (duration: 6')

You will present your work orally, but you will also have to do a padlet with:

- A picture of your draft.
- The title of your draft.
- The name of the group members.
- A short writing about the draft (part of your oral exposition)

An oral exposition must have three parts:

1. Introduction (a brief one)

Introduce your group: name of the members, yourself.

Explain the idea you've got to draw this draft.

2. Development (a bit longer)

Explain the reasons for doing this draft: Why did you do it this way...

Interpret your draft. Explain your creation in detail.

3. Conclusion (a short one)

Summarize the ideas you've explained.

Try to convince the audience your draft is the best to be drawn in the wall of our playground.

LANGUAGE SUPPORT FOR YOUR PRESENTATION:

1. Introduction:

Hello, we are "Jose, Maria, etc..." and we're going to present you our draft...

Our draft represents.....

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2. Development:

The reason we drew this draft is because.....

Our draft is about Pythagoras (for example), but we painted it with, or we did it with a computer because..., and we

wanted to do this composition because....

3. Conclusion:

So, the conclusion is that....

That's why we think this is a good project to be drawn in the wall of our playground.

SESSION 8.4.

PEER ASSESSMENT AND SELF ASSESSMENT FOR THE WORK IN GROUPS

Name and surname:

CRITERIA	LEVEL 1	LEVEL 2	LEVEL 3	SCORE
Contributions	Rarely provides ideas to the group. May even refuse to participate.	Sometimes provides ideas in group work. A satisfactory group member who does what is required.	Provides useful ideas when doing group work. A real leader who contributes a lot of effort.	
Quality of Work	Provides work that usually needs to be redone or rechecked by others.	Provides work that needs to be rechecked by group members.	Provides excellent quality of work	
Attitude	Often is critical publicly and often has a negative attitude toward the task	Occasionally is publicly critical and usually has a positive attitude.	Never is publicly critical of anyone his ideas, opinions or work. Always has a positive attitude about the task.	
Focus to task	Rarely focuses on the task. Lets others do the work	Focuses to the task some of the time. Others need to encourage and remind this person to stay on task.	Continuously stays focused to the task. Very self-motivated.	

SESSION 9.2.

RUBRIC FOR TEACHER ASSESSMENT FOR THE DRAFT

ASPECTS	LEVEL 1	LEVEL 2	LEVEL 3	SCORE
DRAWING ACCURACY	Drawing is not properly drawn in respect to perspective or proportion and scale. Light and shadow if used are incorrectly applied.	Drawing Shows focal points effort toward perspective proportion and scale. Light and shadow if used are correctly applied but could use some adjustment.	Drawing show mastery of all applied drawing techniques to create a exceptional piece in all aspects.	
LINE QUALITY	Line weight has too much or no variations. Too many lines that confuse the form development.	Good line quality Correct thickness of object lines and detail neatly delineated with good form development.	Excellent line quality Correct thickness of all lines and detail neatly delineated with excellent form development	
COMPOSITION	Little or no organization or continuity poor paper space placement drawing runs off paper	Some organization and continuity paper space could be better. Drawing is crowded to edges.	Excellent organization all work is clear grouped. Excellent continuity and balance.	

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PRESENT ATION	Wrong format for the assignment. Sloppy and dirty presentation.	Right format but could be better.	Well crafted in all aspects. properly displayed shows pride and creativity in the work.	
CONTENT	Incoherent or only a few connections to the contents dealt with in the project.	Relations with the project content can be observed although none of them or only a few are the relevant.	Excellent and genuine reflection of the issues studied and learnt along the project.	

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