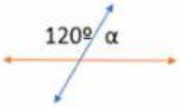
ACTIVITY 1. WARMING UP

Write if angles are complementary, supplementary, opposite or adjacent. Find the value of in each figure.

1.



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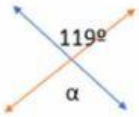

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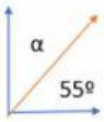

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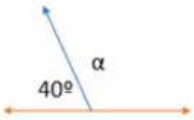

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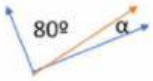

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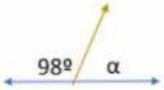

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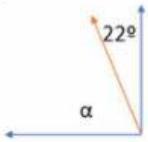

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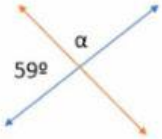

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9.

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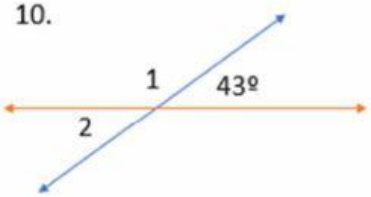
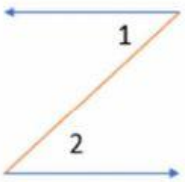
10.



Find the measure of angles 1, 2, 3. Explain your reasoning

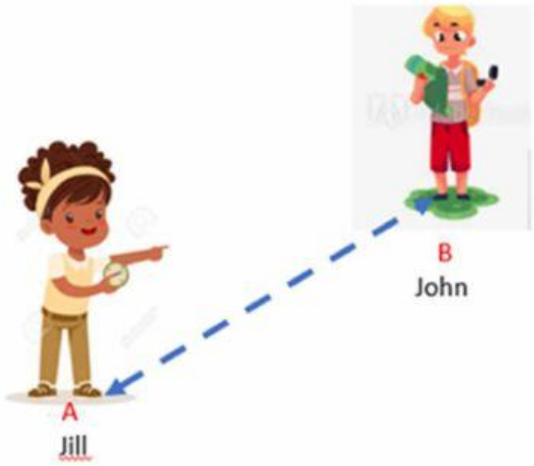
11.



In the figure above, is angle 1 adjacent to angle ? Give reasons

LIVEWORKSHEETS

ACTIVITY 2. DEALING WITH MAGNETIC COMPASSES.



Jill and John are separated for a few meters, both have a magnetic compass.

When Jill points at John with her compass, it reads 45° NE.

What will John's compass read when he points Jill with it?

According to what we know about angles, justify your answer.

LIVEWORKSHEETS

ACTIVITY 3. NAVIGATION: LOST AT SEA .

Navigation problem (do it on Geogebra; if you have any problem dealing with the angles, you can use a protractor on the attached template).

The story:

E12 class students are celebrating the end-of-term, with a trip on a sailboat, setting off Port Ginesta (point D). They go through a fog bank and get lost in the middle of the sea. The math teacher has stayed on shore preparing a *paella* because he says he gets seasick.

Suddenly sails have deflate and the propeller refuses to work ; the boat has run out of fuel. At this point, at Stern, Jill, who's in charge of the steering wheel, has ordered Jan and Moha, who are in the Bow ,to drop anchor, which is immediately done.

Fog is now sorrounding the boat, and our friends can't see anything , neither at starboard nor at port, so the best option is to wait anchored until the fog will vanish.

Finally, the sun shines again and the wind starts blowing, so Jill has token a look on her Navigation Chart, but she's unable to plot the boat's position on it ,in order to start manoeuvring the rudder

Fortunately, Moha and Jan have a magnetic compass and they both observe Castelldefels' Castle (Point B) at 0° N (N-00-E) and Aramprunyà's Castle **(Point A)** at 45° NE (N-45-E).

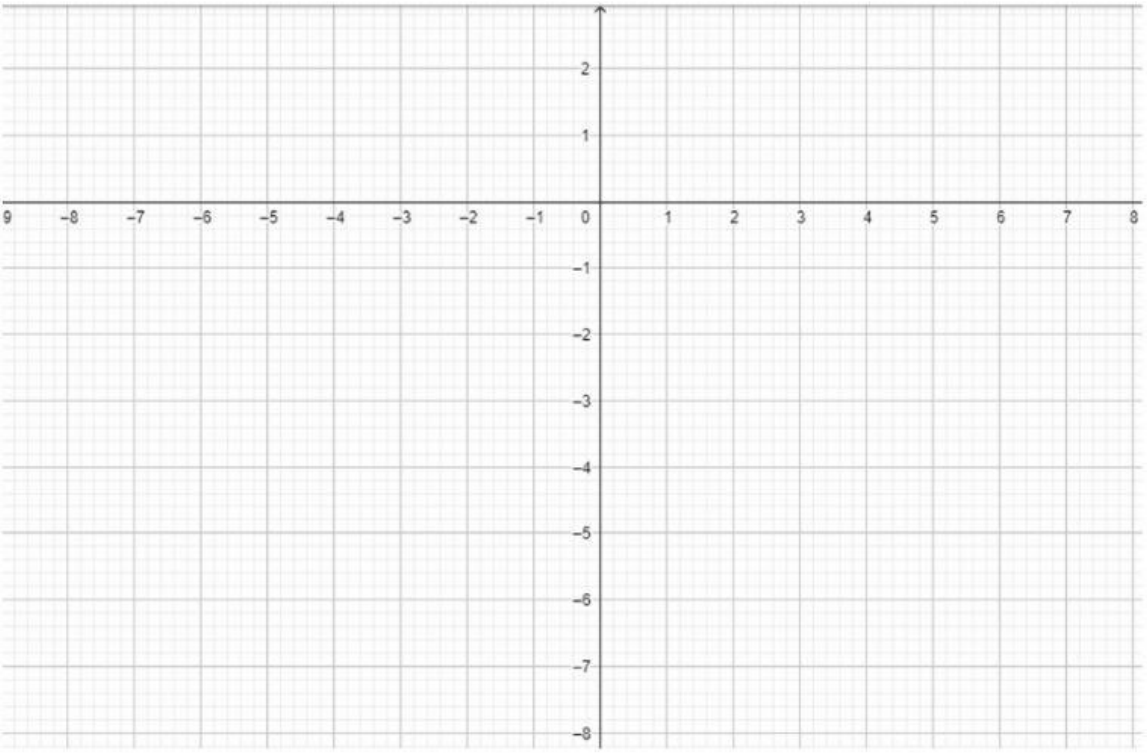
Your tasks:

1. Locate on a Cartesian Plane (Geogebra) the next points:
   a) Castelldefels' Castle, coordinates (1,0)
   b) Aramprunyà's Castle, coordinates (7,2)
   c) Port Ginesta, coordinates (-6,-4)
2. Using Moha's and Jan's compass lectures (N-00 and N-45-E) and the concept of opposite angle , draw AC and BC lines, determine the boat's position (point C) by intersecting both
3. Determine the course that must be set by the boat to get back to Port Ginesta (the angle formed by the CE line with the North).
4. When the boat starts to manoeuvre, if she is heading N-15-E, for how many degrees and into what direction should the boat modify her course to head Port Ginesta.

LIVEWORKSHEETS

5. Once you get to Port Ginesta, your teacher will invite you all to a *paella*. Come on at full sail!!!

Here you have a new grid in case you need to draw with your protractor



LIVEWORKSHEETS

ACTIVITY 4. LANGUAGE LEARNING: LET'S TALK LIKE SAILORS..

The story wrapping the previous activity is plenty of words that you've probably never seen or heart before. Even if theese words are not necessary to solve the problem, you should incorporate into your vocabulary, if you don't want to be taken for freshwater sailors.

YOUR TASK you have to:

- Highlight or underline on the text words of which you don't know the meaning.
- Find them in the grid below, and try to understant their meaning.
- Match words with the correpondent pictures (putting the letter associated to each picture in the cell of the grid you think is the right)

For the words you don't know the meaning and are not in the grid, you should create and fill your own grid, picking up definitions from a Dictionnary

HOME DUTY

For checking and improving your pronunciation You may use the Free Online Audio Dictionary of English Pronunciation

https://howjsay.com/

WORD	MEANING	MATCHING IMAGE
Bow	the front end of a ship.	
Stern	The the back or aft-most part of a ship or boat	
Starboard	When looking forward, toward the bow of a ship, Sartboard refers to the right side	
Port	When looking forward, toward the bow of a ship, port refers to the left side.	
Rudder	a flat piece hinged vertically near the stern of a boat or ship for steering.	
Steering Wheel	is the device that allows changing the angle of the rudder to change the direction of the boat or ship	
Sail	a piece of material extended on a mast to catch the wind and propel a boat or ship or other vessel	

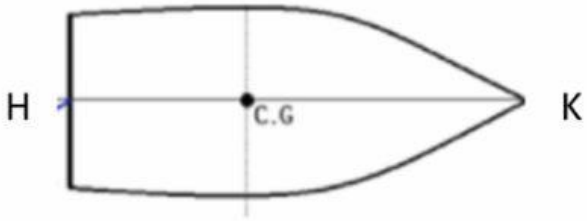
LIVEWORKSHEETS

SEARCHING FOR THE NORTH enric gonzalez

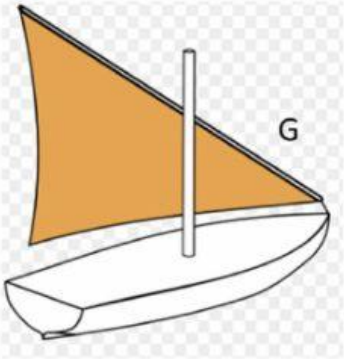
WORD	MEANING	MATCHING IMAGE
Screw/Propeller	type of fan that transmits power by converting rotational motion into thrust	
Anchor	heavy object attached to a cable or chain and used to moor a ship to the sea bottom	
Magnetic Compass	instrument for determining direction on the surface of Earth	

BOAT OVERVIEW

A

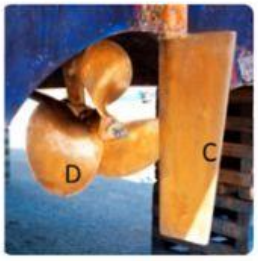


B



E

I



L

LIVEWORKSHEETS

ASSESSMENT RUBRIC

GRADE/ COMPETENCE	AE	AN	AS	NA
MATHEMATICS				
Mathematical Concepts	Shows a complete understanding of the mathematical concepts used to solve the problem(s).	Shows a substantial understanding of the mathematical concepts used to solve the problem(s).	Explanation shows some understanding of the mathematical concepts needed to solve the problem(s).	Explanation shows very limited understanding of the underlying concepts needed to solve the problem(s) OR is not written.
Mathematical Reasoning	Uses complex and refined mathematical reasoning.	Uses effective mathematical reasoning	Some evidence of mathematical reasoning.	Little evidence of mathematical reasoning.
Explanation	Explanation is detailed and clear.	Explanation is clear.	Explanation is a little difficult to understand, but includes critical components.	Explanation is difficult to understand and is missing several components OR was not included.
LANGUAGE				
Communication in English language	Communicates allways in English using an appropiate style, and shows proficiency in Grammar and Vocabulary	Communicates allways in English, adapting the message to his/her language knowledge, when necessary,	Communicates preferently in English, with occcasional use of Mother Tongue. Adequate but short Vocabulary	Poor English use, changes frecquently into Mother Tongue. Short vocabulary and poor structures. Needs to be helped to explain himself
DIGITAL COMPETENCE				
Proficiency in using Geogebra Software,	Shows proficency in using Geogebra Software to solve geometric problems. Able to export and import Geogebra files and manipulate them in other software environnements	Solves basic geometric problems using Geogebra software. Able to export and import Geogebra files.	Solves basic geometric problems using Geogebra software but needs help from classmates or teacher. Able to export Geogebra images and sreenshoots only.	Has huge difficulties in solving geometric problems using Geogebra Software, even helped by classmates or teacher. Uses analogic means to solve problems

a

LIVEWORKSHEETS