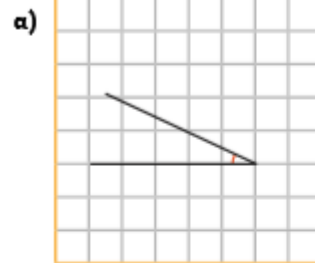
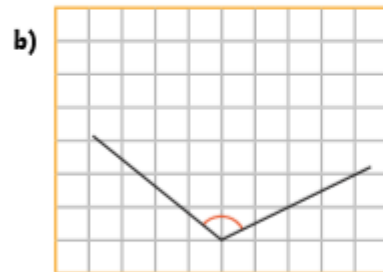


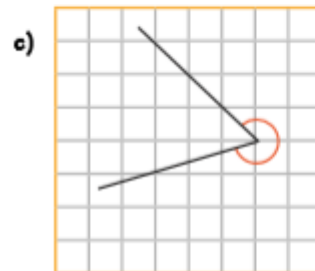
- 1) Identify each angle and match it to the correct name.



obtuse

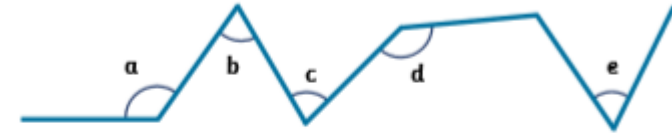


reflex

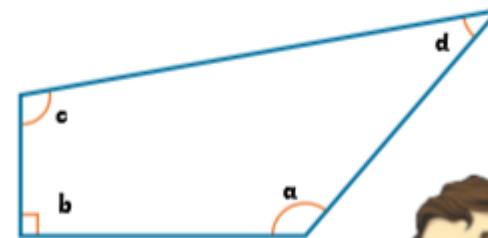


acute

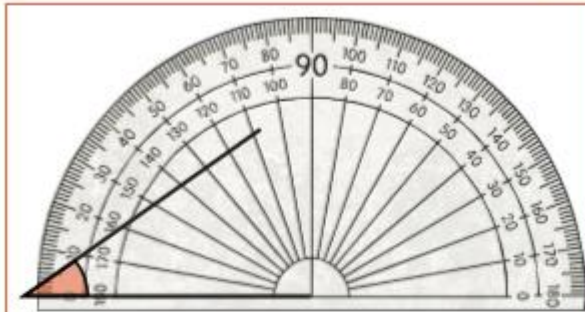
- 2) Estimate two of the angles above. Then, measure them using a protractor.
- 3) This line shows the course a ship sailed across the sea. Estimate then measure each of the angles shown as the ship turned and changed its course.



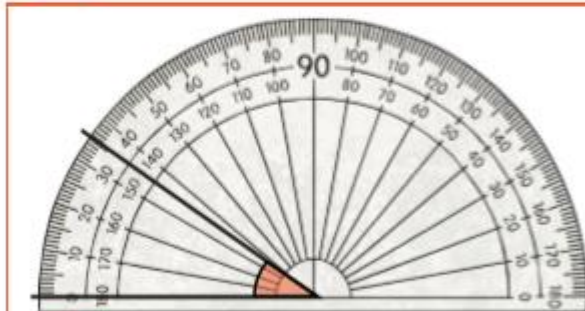
- 4) For each of the angles in the quadrilateral below:
- a) Identify the correct types of angle (acute, obtuse, reflex or right angle).
- b) Measure the angle.



- 1) Two children are measuring the same angle.



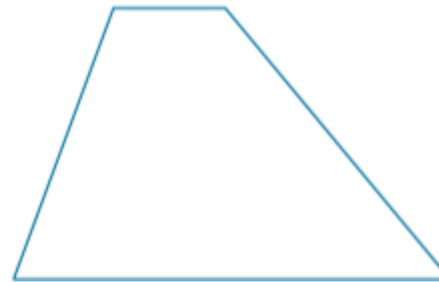
Haya: "I think that this angle measures 75° ."



Daniel: "I don't think Haya is right, I think the angle measures 35° ."

Who do you think has measured the angle correctly? Explain the mistake the other person has made.

- 2) Two children are measuring the angles in this shape:



Keeva: "I think that all of the angles in the shape are acute angles."



Ali: "I think each of the angles in this shape measure between 40° and 140° ."

Are Keeva and Ali both correct?
Explain your answer.



- 1) Investigate finding if each of the statements below is true or false. Draw a picture showing how the angles would fit together, or write a calculation to prove it!



- a) If I put two acute angles together, I can make an angle that is obtuse.
- b) If I put two acute angles together, I can make a reflex angle.
- c) I can make a reflex angle using three acute angles.
- d) If I put two obtuse angles together, I can make a reflex angle.



- 2) When the word 'man' is written in capital letters (formed from straight lines) we can investigate finding the angles in each letter:



M=

A=

N=

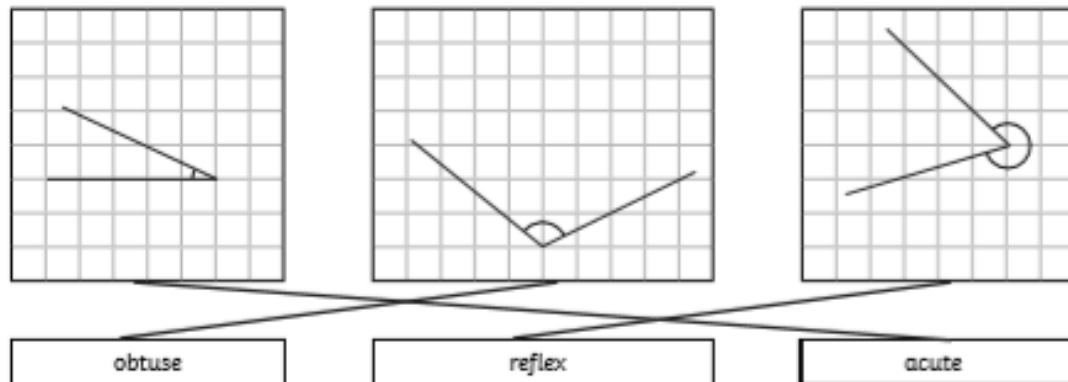
- 3) Investigate writing more three-letter words, using capital letters, that can be formed with straight lines."

For each word:

- a) Identify the types of angles in each letter.
- b) Draw an arc and measure each angle with a protractor.
- c) Investigate finding which three-letter word has the greatest total when all of the angles measured are added together.

ANSWERS

1)



Accept estimates that are within 10° of the actual measurements given below:

- a) 25°
- b) 300°
- c) 115°

2) a = 125°

b = 60°

c = 75°

d = 140°

e = 65°

Allow slight inaccuracies in measurement of up to 2° either side of the given angle.

Angle name/measurement:

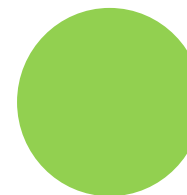
a = obtuse / 130°

b = right angle / 90°

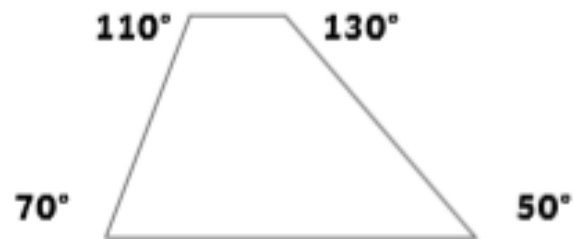
c = obtuse / 100°

d = acute / 40°

Allow slight inaccuracies in measurement of up to 2° either side of the given angle. The sum of the angles should be 360° .



- 1) Daniel has measured the angle correctly. Haya has incorrectly positioned the protractor. The centre of her protractor is at the end of the line rather than at the point where the lines meet.
- 2) Keeva is incorrect. Two of the angles are acute and two of the angles are obtuse. Ali is correct. The angle measurements for each angle in the shape are:



- 1) For each of the statements children should illustrate if the statement is true or false by making drawings or writing calculations that combine the given number of angles in order to prove/disprove each statement.
 - a) True. For example: $50^\circ(\text{acute}) + 60^\circ(\text{acute}) = 110^\circ(\text{obtuse})$
 - b) False. For example: $89^\circ(\text{largest acute}) + 89^\circ(\text{largest acute}) = 178^\circ(\text{obtuse not reflex})$
 - c) True. For example: $89^\circ(\text{largest acute}) + 89^\circ(\text{largest acute}) + 89^\circ(\text{largest acute}) = 267^\circ(\text{reflex})$
 - d) True. For example: $120^\circ(\text{obtuse}) + 130^\circ(\text{obtuse}) = 250^\circ(\text{reflex})$
- 2) M = 2 acute angles and 1 reflex angle, A = 3 acute angles and 2 obtuse angles, N = 2 acute angles
- 3) Answers will vary depending on words chosen.
Angle measurements will vary due to slight variation in the drawing of certain letters.
Some letters, such as U, O, and P will have no angles to name or measure due to the curved lines.