

WA5MMGTW5

Two-dimensional space and structures

Core + Challenge

NAPLAN-style

Measuring and Drawing Angles

I can estimate, measure and draw angles in degrees with a protractor, including reflex angles.

Name: _____ Date: _____ Score: _____ / 56

Key idea

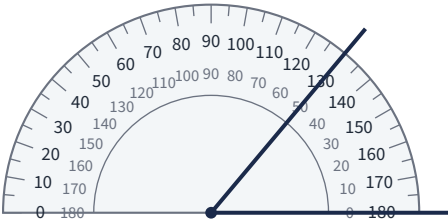
An angle measures the **amount of turn** between two arms. We measure it in **degrees (°)**. A full turn is 360° .

To measure: put the protractor's **centre on the vertex** and the **0 line on one arm**. Count up from **that** 0 to the other arm.

Always **estimate first**: less than 90° is acute, 90° is right, between 90° and 180° is obtuse, more than 180° is reflex.

Example: the arm starts at 0 on the **inner** scale, so read the inner scale: the angle is 50° (not 130°).

Reading a protractor



Reflex angle: $360^\circ - 70^\circ = 290^\circ$



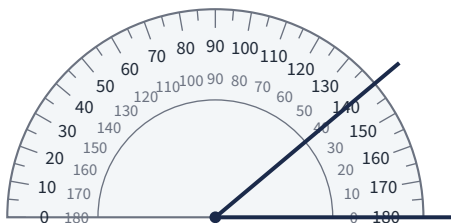
A

Warm up draw, shade and write

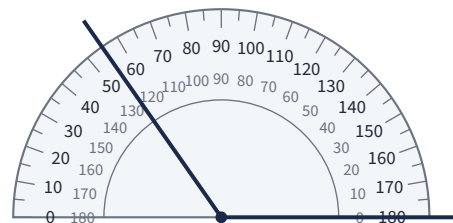
/ 16 marks

Read each protractor. Write the size of the angle between the two dark arms. 1 mark each.

1

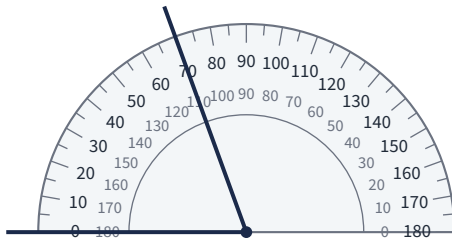


2

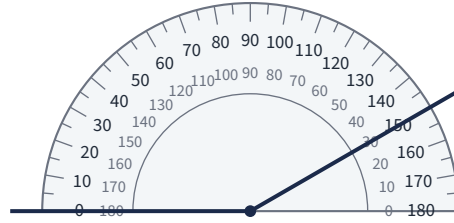


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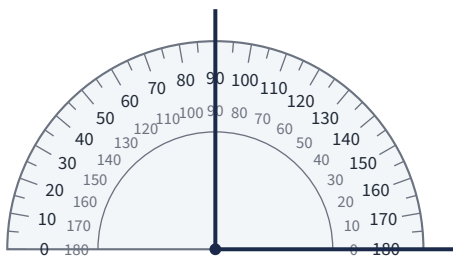
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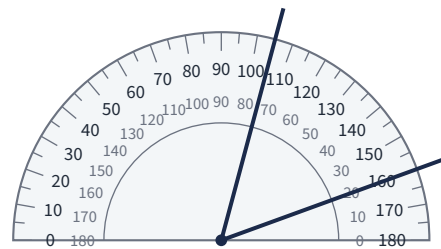
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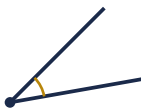


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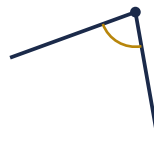


Measure each angle with your protractor. 1 mark each (accept $\pm 2^\circ$).

7



8



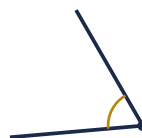
9



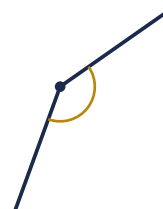
10



11



12



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Draw each angle from the arm given. Mark the angle with an arc. 1 mark each ($\pm 2^\circ$).

13 Draw 30°

14 Draw 75°

15 Draw 110°

16 Draw 165°



B Practise *use the skill*

/ 21 marks

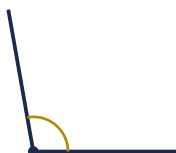
1 Estimate each angle first, then measure it. Name each type of angle.

[3 marks]

A



B



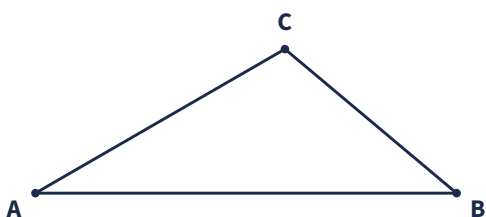
C



Angle	Estimate	Measure	Type of angle
A			
B			
C			

2 Measure the three angles of triangle ABC. Which angle is **obtuse**?

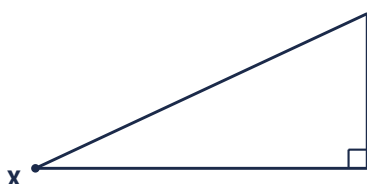
[3 marks]



Answer: _____

3 A skate ramp is shown. Measure the angle the ramp makes with the ground at X. What type of angle is it?

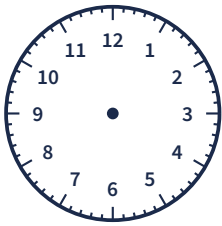
[2 marks]



Answer: _____

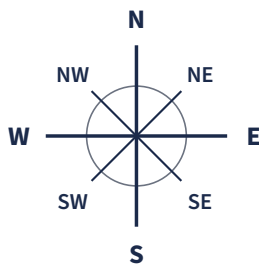
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- 4 Draw the hands to show **2 o'clock**. Then measure the angle between the hands. [2 marks]



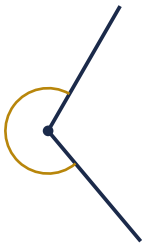
Answer: _____

- 5 Ella is facing **north**. How many degrees does she turn clockwise to face **a)** east? [3 marks]
b) south-west? **c)** north-west?



Answer: _____

- 6 This is a **reflex** angle. Measure it. (Hint: measure the smaller angle first.) [2 marks]



Answer: _____

- 7 Draw a **reflex angle of 200°** from the arm given. Show your working. [2 marks]



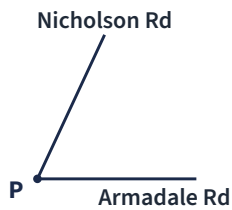
- 8 A laptop is open as shown. Measure the angle between the screen and the keyboard. What type of angle is it? [2 marks]



Answer: _____

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- 9 On this map of a Perth street corner, two roads meet at P. Measure the angle between the roads. [2 marks]

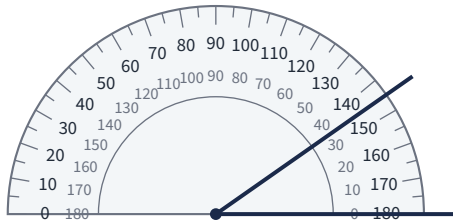


Answer: _____

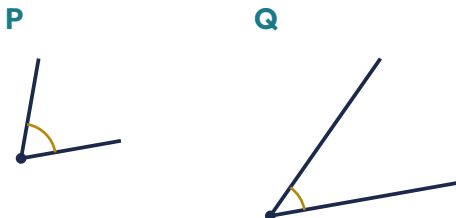
C Think it through *explain your thinking*

/ 10 marks

- 1 Mia measured this angle and wrote **145°**. Do you agree with Mia? Explain what she did wrong. [2 marks]



- 2 True or false: “Angle Q is bigger than angle P because its arms are longer.” Explain. [2 marks]



- 3 **Always, sometimes or never true?** “Two acute angles together make an obtuse angle.” Circle one. Give an example to show each way. [2 marks]

☐ Always☐ Sometimes☐ Never

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- 4 Which angle is the **odd one out**? 105° , 125° , 165° , 215° Use the **types** of angle to explain. [2 marks]

- 5 Kai says, "A straight line is not an angle." Explain why a straight line makes an angle of 180° . [2 marks]

D Challenge *stretch yourself*

/ 9 marks

- 1 Draw the hands at **4 o'clock**. What is the smaller angle between the hands? What is the reflex angle? Explain how you know without measuring. [3 marks]



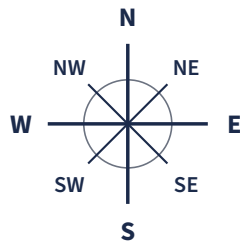
Answer: _____

- 2 Use a ruler and protractor. Draw a line AB **6 cm** long. At A draw an angle of 50° , and at B draw an angle of 60° , on the same side of AB, so the two new lines cross at C. Measure the angle at C. Then measure AC and BC to the nearest millimetre. [3 marks]

Answer: _____

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- 3 Jack faces **north**. He turns **270° clockwise**. **a)** Which direction does he face? **b)** What smaller turn anticlockwise would have got him there? **c)** He then turns another 135° clockwise. Which direction does he face now? [3 marks]



Answer: _____

How did I go?

Warm up ____ / 16 Practise ____ / 21 Think it through ____ / 10 Challenge ____ / 9 **Total ____ / 56**

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