

- 1 A train leaves Zurich at 22 40 and arrives in Vienna at 07 32 the next day.

Work out the time taken.

..... h min [1]

- 2 From a sample of 80 batteries, 3 are faulty.

Work out the percentage of faulty batteries.

..... % [1]

- 3 Write 1.27×10^{-3} as an ordinary number.

.....[1]

- 4 Calculate $(2.1 - 0.078)^{17}$, giving your answer correct to 4 significant figures.

.....[2]

- 5 Omar changes 2000 Saudi Arabian riyals (SAR) into euros (€) when the exchange rate is €1 = 5.087 SAR.

Work out how much Omar receives, giving your answer correct to the nearest euro.

€[2]

6 Find the lowest common multiple (LCM) of 36 and 48.

..... [2]

7 $y = mx + c$

Find the value of y when $m = -2$, $x = -7$ and $c = -3$.

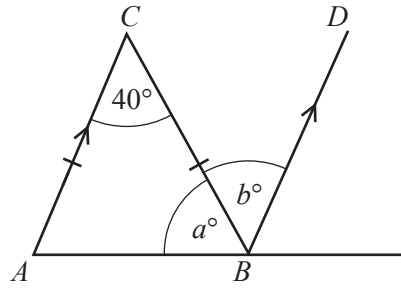
$y =$ [2]

8 $y = \frac{qx}{p}$

Write x in terms of p , q and y .

$x =$ [2]

9



NOT TO SCALE

Triangle ABC is isosceles and AC is parallel to BD .

Find the value of a and the value of b .

$a =$

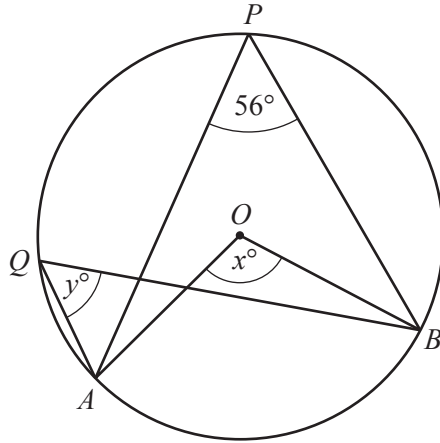
$b =$ [2]

10 The sides of an equilateral triangle are 9.4 cm, correct to the nearest millimetre.

Work out the upper bound of the perimeter of this triangle.

..... cm [2]

11



NOT TO SCALE

A, B, P and Q lie on the circle, centre O .
Angle $APB = 56^\circ$.

Find the value of

(a) x ,

$x = \dots\dots\dots$ [1]

(b) y .

$y = \dots\dots\dots$ [1]

12 Simplify $(16p^{16})^{\frac{1}{4}}$.

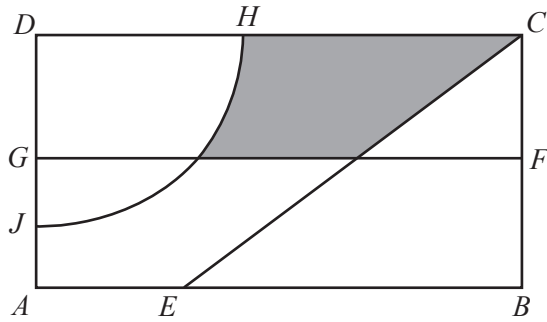
$\dots\dots\dots$ [2]

13 Solve the inequality.

$$n + 7 < 5n - 8$$

$\dots\dots\dots$ [2]

14



NOT TO
SCALE

The diagram shows a rectangular garden divided into different areas.
 FG is the perpendicular bisector of BC .
 The arc HJ has centre D and radius 20 m.
 CE is the bisector of angle DCB .

Write down two more statements using loci to describe the shaded region inside the garden.

The shaded region is

- nearer to C than to B
-
- [2]

15

7, 5, 3, 1, -1, ...

(a) Find the next term in this sequence.

..... [1]

(b) Find the n th term of the sequence.

..... [2]

- 16 Without using a calculator, work out $\frac{6}{7} \div 1\frac{2}{3}$.

Show all your working and give your answer as a fraction in its lowest terms.

..... [3]

- 17 Five angles of a hexagon are each 115° .

Calculate the size of the sixth angle.

..... [3]

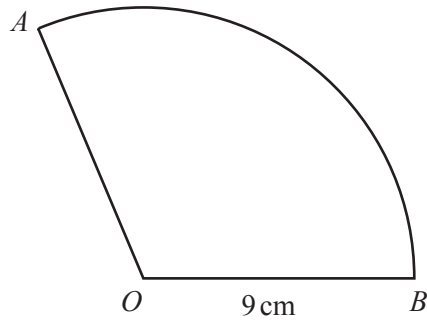
- 18 A car of length 4.3 m is travelling at 105 km/h.
It passes over a bridge of length 36 m.

Calculate the time, in seconds, it takes to pass over the bridge **completely**.

..... s [3]

- 20 AB is an arc of a circle, centre O , radius 9 cm.
The length of the arc AB is 6π cm.
The area of the sector AOB is $k\pi$ cm².

Find the value of k .



NOT TO
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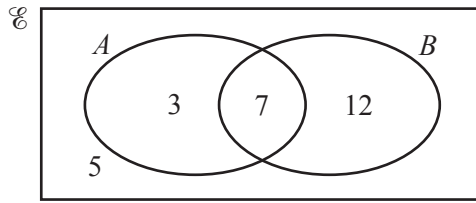
$$k = \dots\dots\dots [3]$$

- 21 y is directly proportional to the positive square root of x .
When $x = 9$, $y = 12$.

Find y when $x = \frac{1}{4}$.

$$y = \dots\dots\dots [3]$$

22



The Venn diagram shows the numbers of elements in each region.

(a) Find $n(A \cap B')$.

..... [1]

(b) An element is chosen at random.

Find the probability that this element is in set B .

..... [1]

(c) An element is chosen at random from set A .

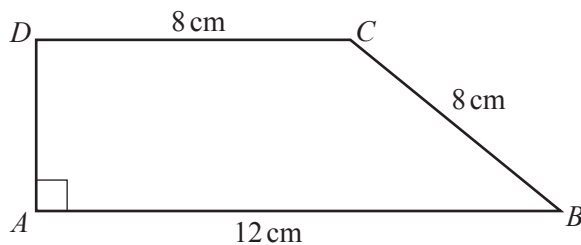
Find the probability that this element is also a member of set B .

..... [1]

(d) On the Venn diagram, shade the region $(A \cup B)'$.

[1]

23



NOT TO SCALE

Calculate the area of this trapezium.

..... cm^2 [4]

24 Factorise completely.

(a) $2a + 4 + ap + 2p$

..... [2]

(b) $162 - 8t^2$

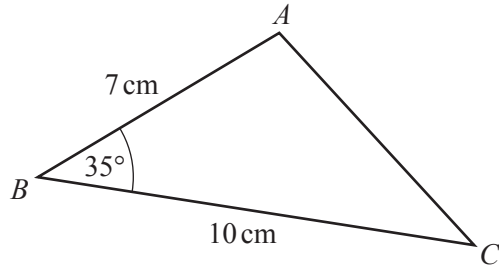
..... [2]

25 A is the point (4, 1) and B is the point (10, 15).

Find the equation of the perpendicular bisector of the line AB .

..... [6]

Question 26 is printed on the next page.



NOT TO SCALE

(a) Calculate the area of triangle ABC .

..... cm^2 [2]

(b) Calculate the length of AC .

$AC =$ cm [4]

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