



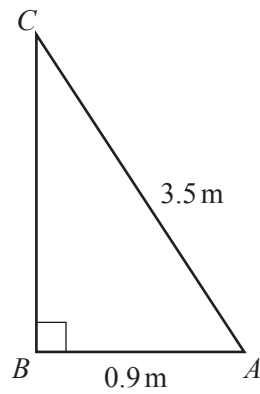
1 Solve $(x - 7)(x + 4) = 0$.

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

2 Factorise $2x - 4xy$.

$\dots\dots\dots$ [2]

3



NOT TO
SCALE

Calculate angle BAC .

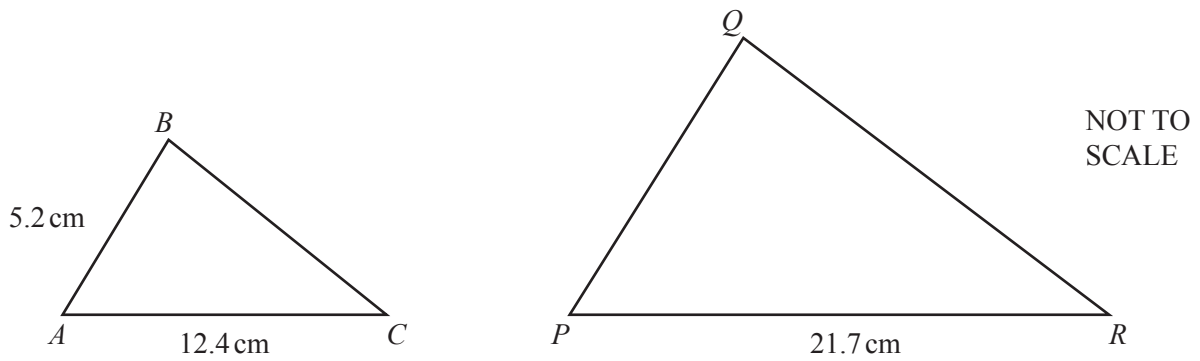
Angle $BAC = \dots\dots\dots$ [2]

4 Solve the inequality.

$$6n + 3 > 8n$$

$\dots\dots\dots$ [2]

- 5 Triangle ABC is similar to triangle PQR .



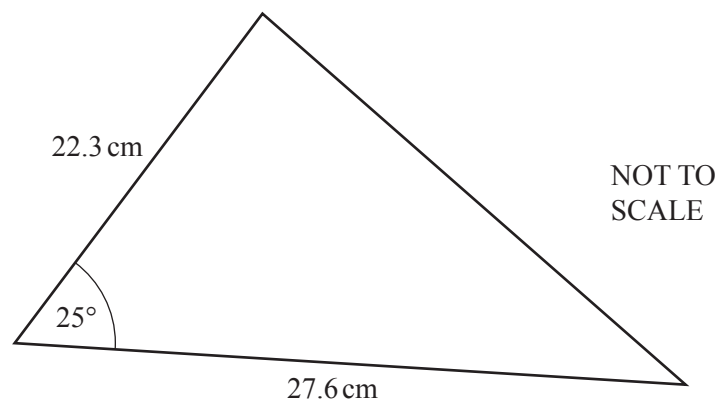
Find PQ .

$$PQ = \dots\dots\dots \text{ cm [2]}$$

- 6 Write the recurring decimal $0.\dot{4}$ as a fraction.
[$0.\dot{4}$ means $0.444\dots$]

$$\dots\dots\dots [2]$$

7



Calculate the area of this triangle.

$$\dots\dots\dots \text{ cm}^2 [2]$$

- 8 Find the inverse of the matrix $\begin{pmatrix} 3 & -2 \\ -8 & 7 \end{pmatrix}$.

$\begin{pmatrix} & \\ & \end{pmatrix}$ [2]

- 9 **Without using your calculator**, work out $1\frac{7}{12} + \frac{13}{20}$.

You must show all your working and give your answer as a mixed number in its simplest form.

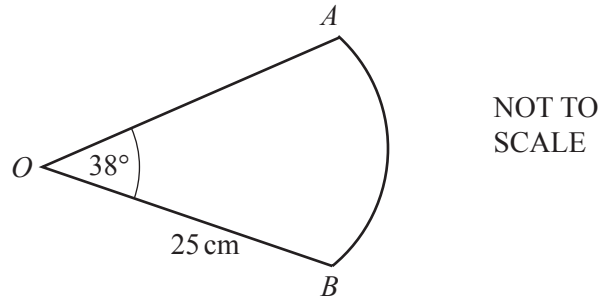
..... [3]

- 10 The scale on a map is 1 : 20 000.
The area of a lake on the map is 1.6 square centimetres.

Calculate the actual area of the lake.
Give your answer in square metres.

.....m² [3]

11



The diagram shows a sector of a circle, centre O , radius 25 cm .
The sector angle is 38° .

Calculate the length of the arc AB .
Give your answer correct to 4 significant figures.

$AB = \dots\dots\dots\text{ cm [3]}$

- 12** A metal pole is 500 cm long, correct to the nearest centimetre.
The pole is cut into rods each of length 5.8 cm , correct to the nearest millimetre.

Calculate the largest number of rods that the pole can be cut into.

$\dots\dots\dots [3]$

13 (a) Write 2016 as the product of prime factors.

..... [3]

(b) Write 2016 in standard form.

..... [1]

14 Simplify.

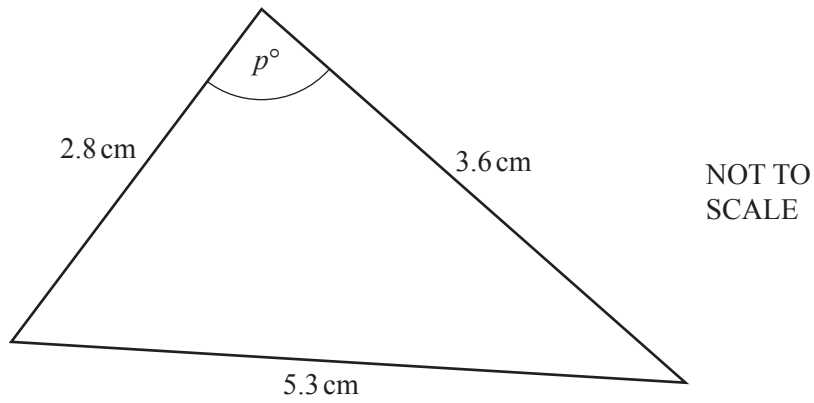
(a) $x^3y^4 \times x^5y^3$

..... [2]

(b) $(3p^2m^5)^3$

..... [2]

15



Find the value of p .

$p = \dots\dots\dots$ [4]

- 16** Raj measures the height, h cm, of 70 plants.
The table shows the information.

Height (h cm)	$10 < h \leq 20$	$20 < h \leq 40$	$40 < h \leq 50$	$50 < h \leq 60$	$60 < h \leq 90$
Frequency	7	15	27	13	8

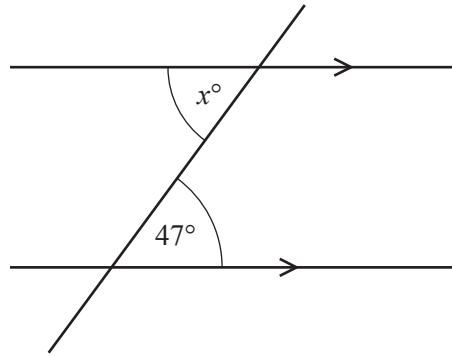
Calculate an estimate of the mean height of the plants.

$\dots\dots\dots$ cm [4]

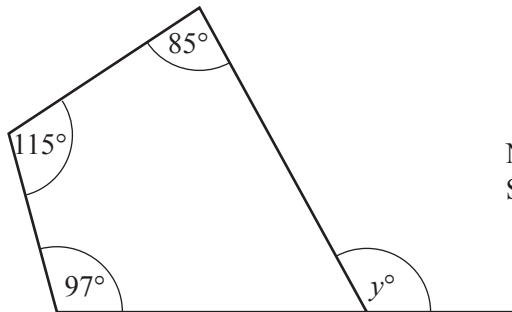
- 17 Solve the equation $3x^2 - 11x + 4 = 0$.
Show all your working and give your answers correct to 2 decimal places.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$ [4]

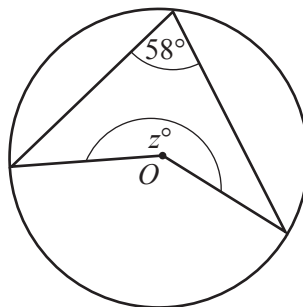
18 (a)

NOT TO
SCALEFind the value of x . $x = \dots\dots\dots$ [1]

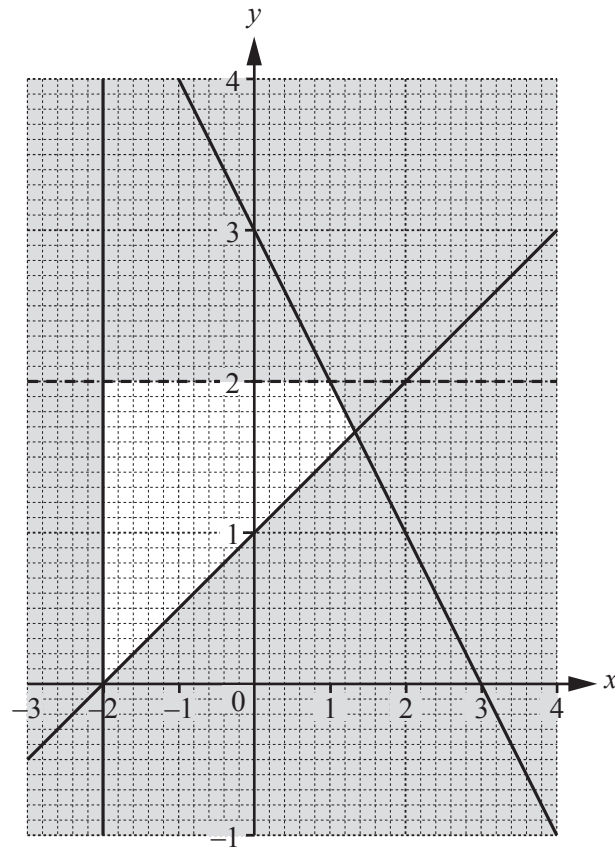
(b)

NOT TO
SCALEFind the value of y . $y = \dots\dots\dots$ [2]

(c)

NOT TO
SCALEThe diagram shows a circle, centre O .Find the value of z . $z = \dots\dots\dots$ [2]

19



Find the four inequalities that define the region that is **not** shaded.

.....

 [5]

20 The n th term of a sequence is $an^2 + bn$.

(a) Write down an expression, in terms of a and b , for the 3rd term.

..... [1]

(b) The 3rd term of this sequence is 21 and the 6th term is 96.

Find the value of a and the value of b .

You must show all your working.

$a =$

$b =$ [4]

Question 21 is printed on the next page.

- 21 Dan either walks or cycles to school.
The probability that he cycles to school is $\frac{1}{3}$.

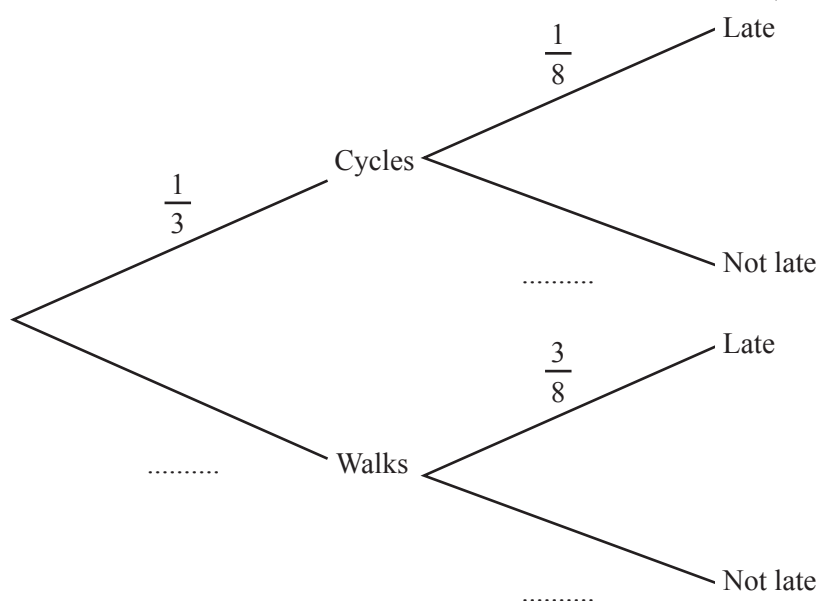
(a) Write down the probability that Dan walks to school.

..... [1]

(b) When Dan cycles to school the probability that he is late is $\frac{1}{8}$.

When Dan walks to school the probability that he is late is $\frac{3}{8}$.

Complete the tree diagram.



[2]

(c) Calculate the probability that

(i) Dan cycles to school and is late,

..... [2]

(ii) Dan is not late.

..... [3]

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