68.

Solve $4y + 1 = 6y + 26$

$-4y \quad 1 = 2y + 26 \quad -4y$

$-26 \quad -25 = 2y \quad -26$

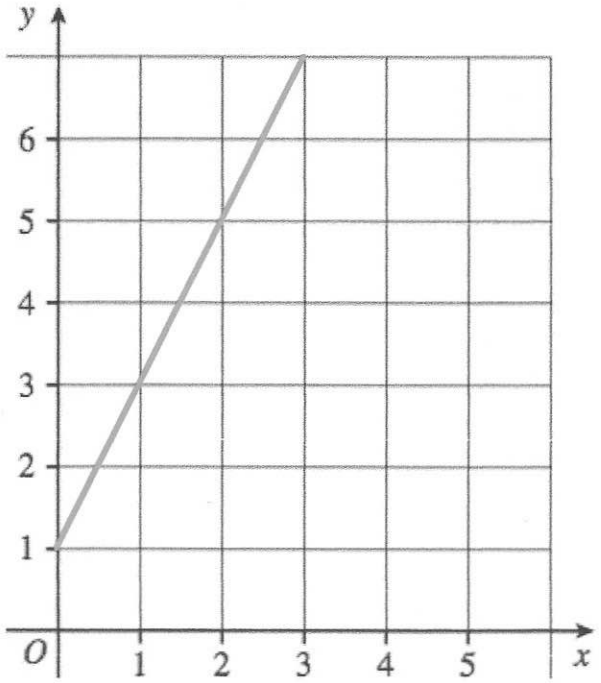
$\div 2 \quad -12.5 = y \quad \div 2$

$y = -12.5$

(2)

69.

A straight line L is shown on the grid.



Work out the equation of line L

$y = 2x + 1$

(3)

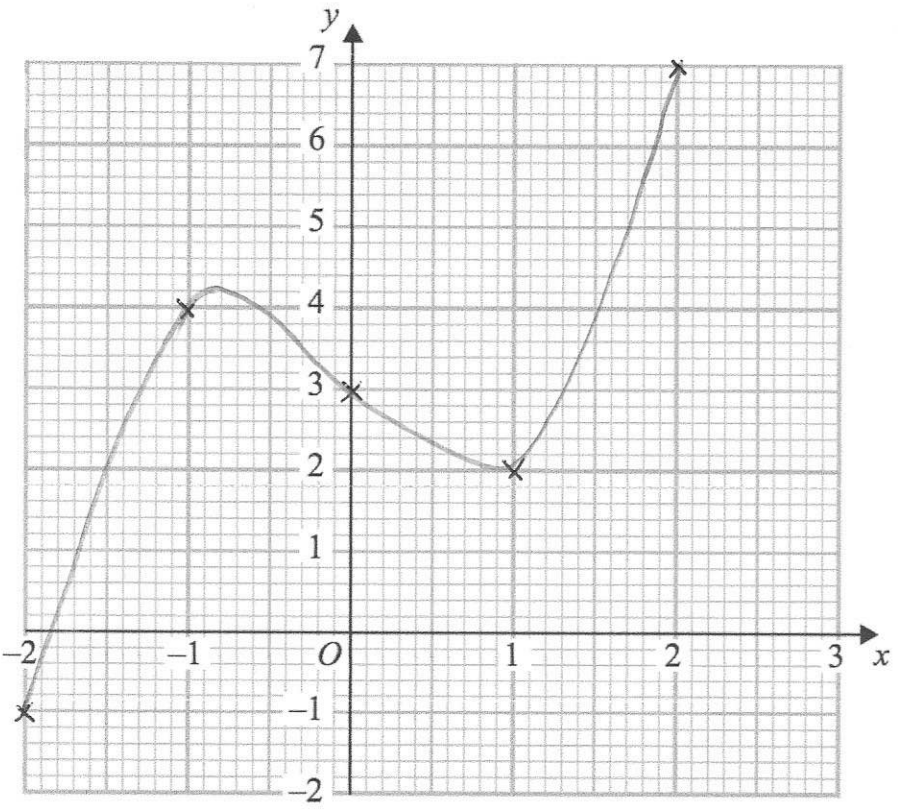
70.

(a) Complete the table of values for $y = x^3 - 2x + 3$

x	-2	-1	0	1	2
y	-1	4	3	2	7

(2)

(b) On the grid, draw the graph of $y = x^3 - 2x + 3$ for the values of x
$-2 \leq x \leq 2$



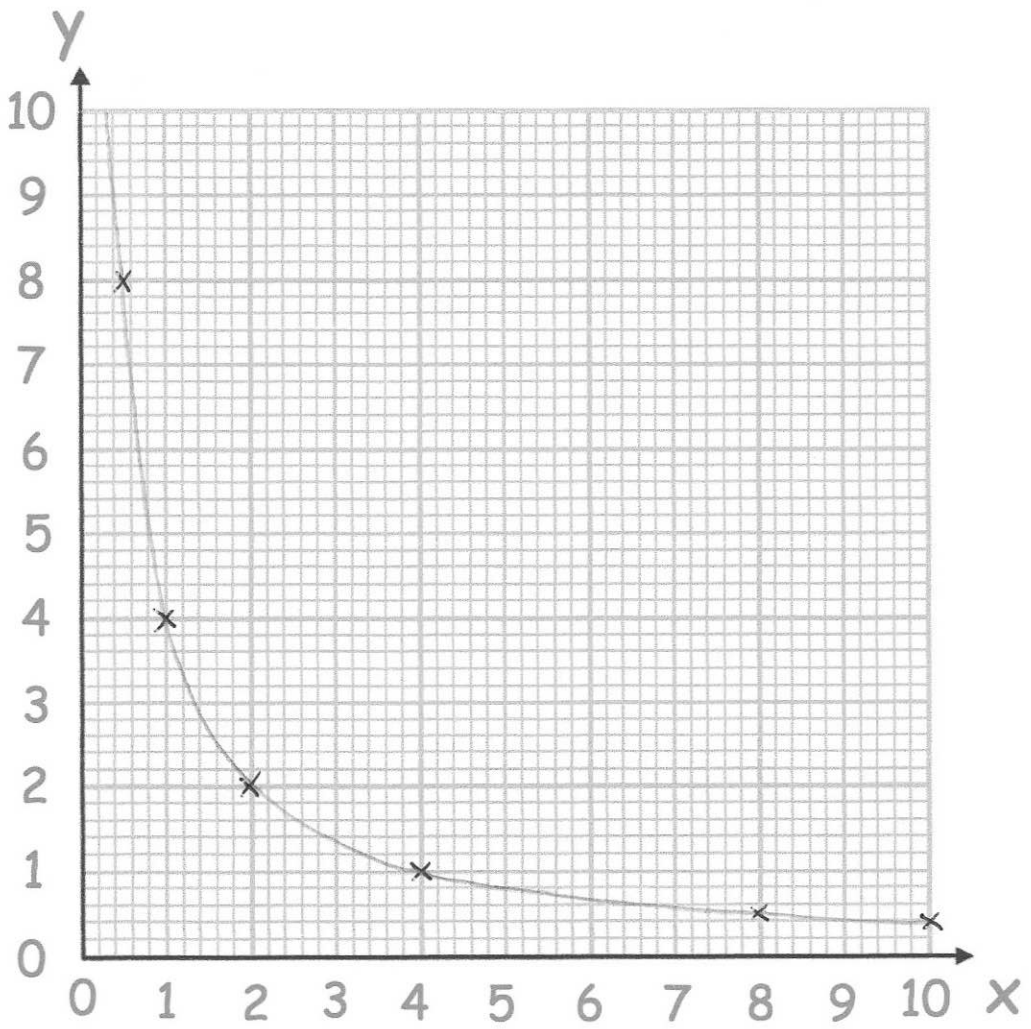
(2)

7) . (a) Complete the table of value for $y = \frac{4}{x}$

x	0.5	1	2	4	8	10
y	8	4	2	1	0.5	0.4

(2)

(b) On the grid, draw the graph of $y = \frac{4}{x}$ for $0.25 \leq x \leq 10$



(2)

72

. Iron has a density of 7.8g/cm³.
A solid iron statue has a mass of 877.5g.
Work out the volume of the statue.

$$V = \frac{m}{d} = \frac{877.5}{7.8}$$

112.5 ..... cm³

(2)

73

A box is placed on the floor.

The area of the box in contact with the floor is $2.4m^2$
Pressure exerted on the floor 16 newtons/m^2

Work out the force exerted by the box on the floor.

$F = P \times A$

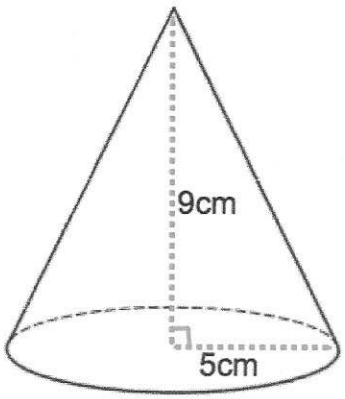
$= 16 \times 2.4$

38.4 N

(3)

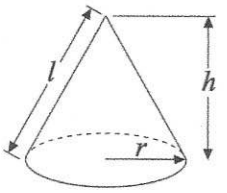
74

. A cone has base radius 5cm and perpendicular height 9cm.



Volume of cone $= \frac{1}{3}\pi r^2 h$

Curved surface area of cone $= \pi r l$



Work out the volume of the cone.

$\frac{1}{3} \times \pi \times 5^2 \times 9$

235.62 cm³

(3)

75

. Given $\mathbf{a} = \begin{pmatrix} 6 \\ -4 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} -2 \\ 1 \end{pmatrix}$

Work out $3\mathbf{a} - \mathbf{b}$

$$3\underline{a} = \begin{pmatrix} 18 \\ -12 \end{pmatrix}$$

$$3\underline{a} - \underline{b} = \begin{pmatrix} 20 \\ -13 \end{pmatrix}$$

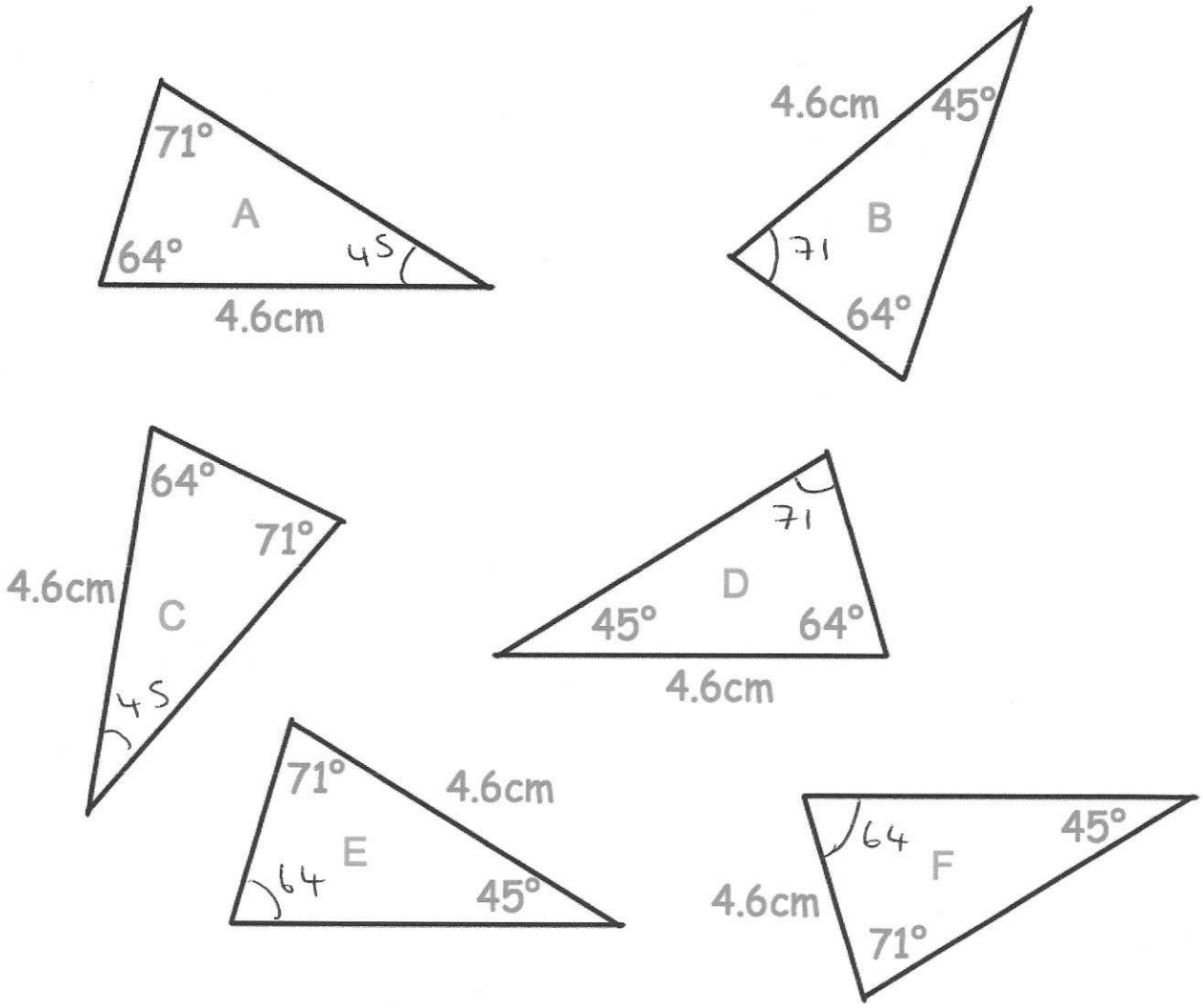
$\begin{pmatrix} 20 \\ -13 \end{pmatrix}$

.....

(3)

76

Shown below are six triangles that are not drawn accurately.

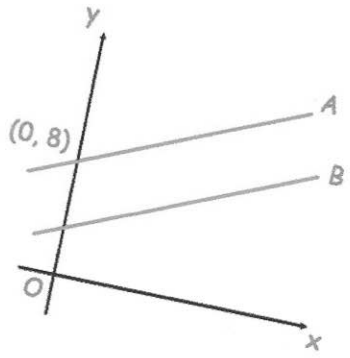


Which two triangles are congruent to triangle A?

D and C

(2)

77



The lines A and B are parallel.

The line A passes through the point (0, 8)
The line B has equation $y = 3x + 4$

Write down the equation of line A

$y = 3x + 8$

(2)

78

(a) Simplify

$$m^9 \times m^2$$

m^{11}

.....

(1)

(b) Simplify

$$\frac{m^{10}}{m^2}$$

m^8

.....

(1)

(c) Simplify

$$(m^3)^6$$

m^{18}

.....

(1)

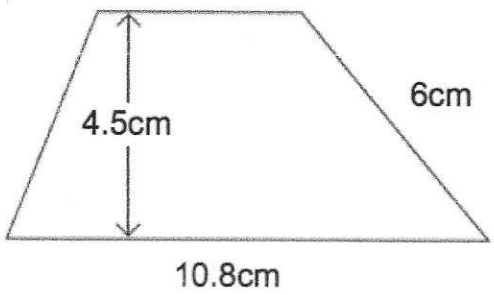
79

. Write down the exact value of Sin 30°

0.5 or $\frac{1}{2}$

(1)

80



Not drawn accurately

$\frac{1}{2}(5.2 + 10.8) \times 4.5$

Calculate the area of the trapezium.

36 .....cm²

(2)

81

Write these numbers in order of size.
Start with the smallest number.

0.92 0.901 0.99 0.099 0.909

0.099, 0.901, 0.909, 0.92, 0.99

(1)

8t

. Write down all the factors of 36.

1, 2, 3, 4, 6, 9, 12, 18, 36

.....

(2)

g3

Complete the table.

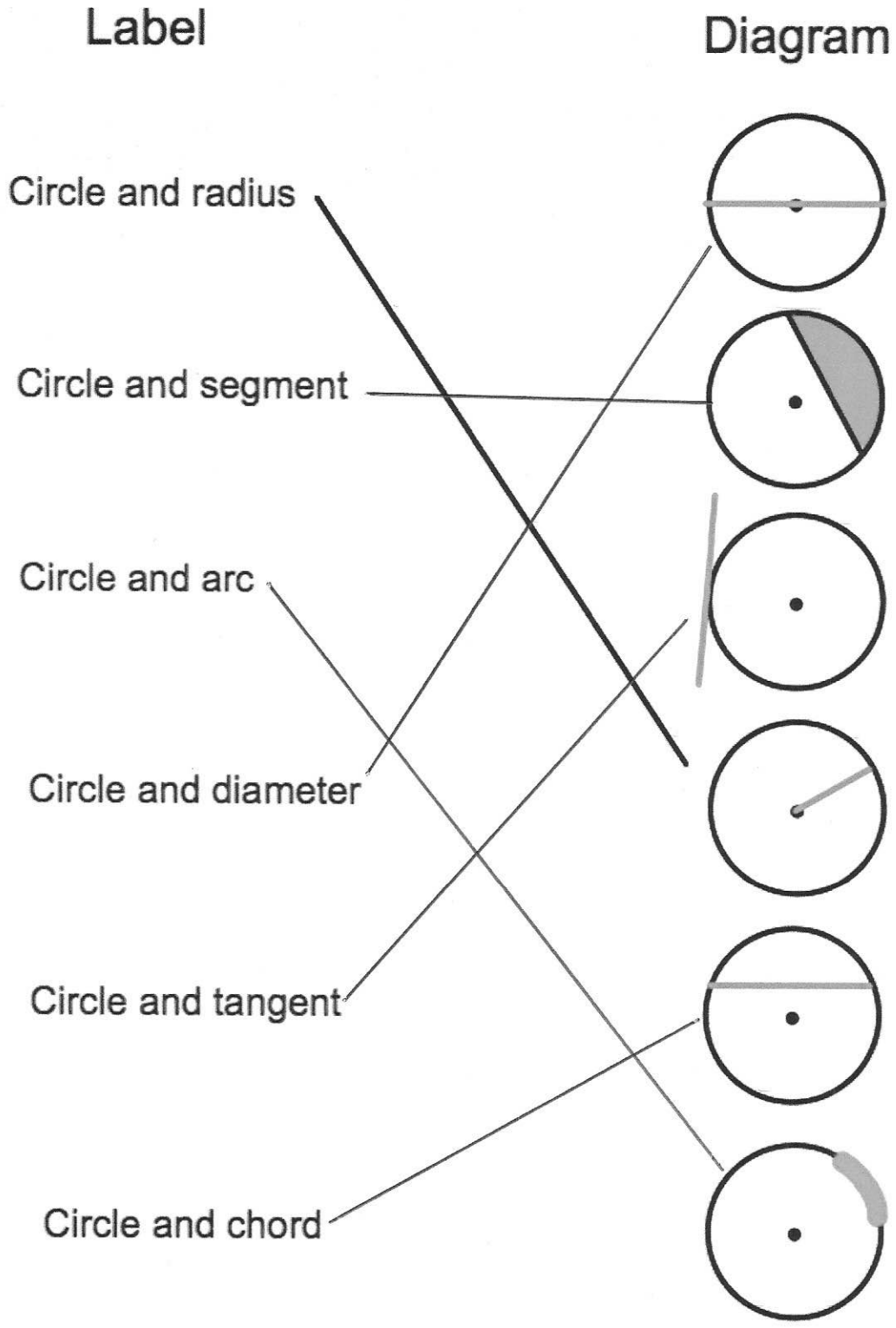
Fraction	Decimal	Percentage
$\frac{17}{20}$	0.85	85%
$\frac{3}{25}$	0.12	12%
$\frac{23}{25}$	0.92	92%

(4)

84

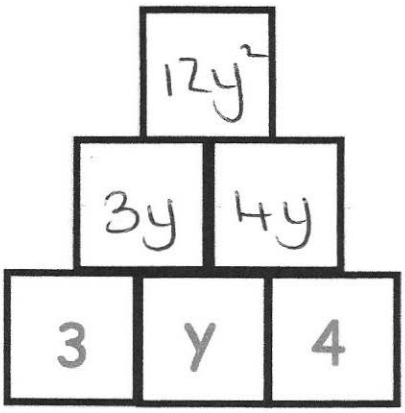
Here are 6 diagrams and 6 labels.
In the diagram the centre of the circle is shown with a dot.

Match each diagram to its label.
One has been done for you.



(4)

85.



To find the contents of each empty box, multiply the two terms directly beneath it.

Complete the multiplication pyramid.

(3)

8b

Simplify 9h + 5k + 4h – 8k

$9h + 4h + 5k - 8k$

$= 13h - 3k$

.....

(2)

87

(a) Write down two multiples of 7.

14 and 28

(1)

(b) Write down two multiples of 9.

18 and 36

(1)

(c) Write down a number which is a multiple of both 7 and 9.

7 => 7, 14, 21, 28, 35, 42, 49,
56, 63, 70

63

(1)

9 => 9, 18, 27, 36, 45, 54, 63, 72, 81, 90

88

$y = w - 2a^2$

w = 400
a = 5

Work out the value of y.

$400 - 2(5^2)$

$= 400 - 50$

$= 350$

350

(2)

89

The distance from Leek to Milton is 310 miles.
A train travels this distance in 4 hours 15 minutes.

Calculate the average speed of the train.

$$S = \frac{d}{t} = \frac{310}{4.25} = 72.941176\ldots$$

$t = 4\text{ hr } 15\text{ MIN}$

$= 4.25\text{ hr}$

72.9 .....mph

(3)

96

Two numbers are in the ratio 3:7
One of the numbers is 42
There are two possible values for the other number.
What are the two possible values?

$7 \times 6 = 42$

$3 \times 6 = 18$

$3 \times 14 = 42$

$7 \times 14 = 98$

2 possible values are 18 + 98

91

Sarah bought a TV for £250
Three years later she sold it for £180

Work out her percentage loss

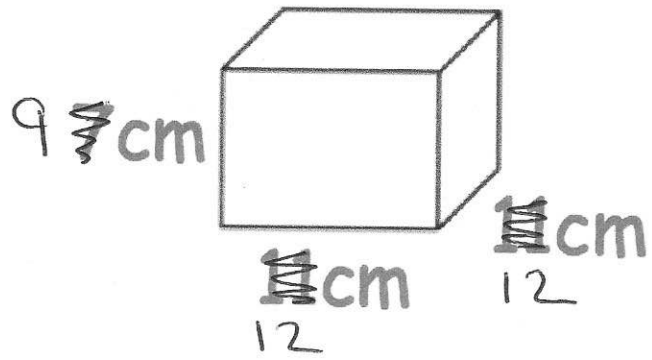
$$250 - 180 = 79$$

$$\frac{70}{250} \times 100 = 28\%$$

28 %

(3)

92



Work out the surface area of this cuboid.
State the units of your answer.

$9 \times 12 = 108$

$12 \times 12 = 144$

$108 \times 4 = 432$

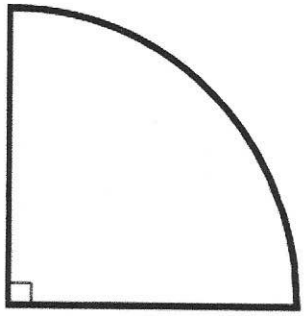
$144 \times 2 = 288$

$432 + 288 =$

720 cm^2

(3)

93



Calculate the perimeter of the sector.

Arc length $= \frac{1}{4} \times 2 \times \pi \times 8 = 12.5664...$

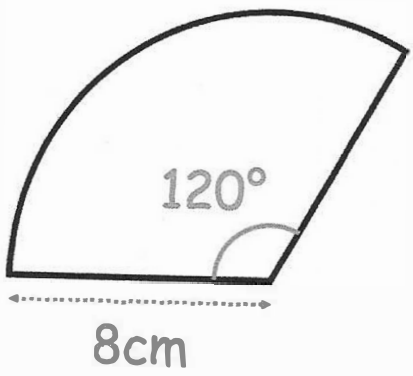
$P = 12.5664... + 8 + 8$

$= 28.5664...$

28.6 cm

(2)

94



Calculate the area of the sector.

$$\text{Area} = \frac{120}{360} \times \pi \times 8^2$$

$$= 67.02064\ldots$$

67.02 ..... cm^2

(2)

Q5

A number, n, is rounded to 1 decimal place.
The result is 1.3
Using inequalities, write down the error interval for n.

$1.25 \leq n < 1.35$

9b

A supermarket sells Baked Beans in two different size cans.

215g

40p

395g

74p

Which size can is the best value for money?
You must show all your working.

215g = 40p ÷215 ÷215

$1g = \frac{40}{215}p$

1 kg = 186p = £1.86

395g = 74p

$1g = \frac{74}{395}p$

1 kg = 187p = £1.87

(4)

The 215g can is better value.

97

Work out

$$\sqrt[4]{100 - 2.4^3}$$

Write down all the figures from your calculator display.

3.04681849 3

(2)

98

The sizes of the interior angles of a triangle are in the ratio 1:3:8
Calculate the difference in size between the largest and smallest angles.

Angles in triangle add to 180°

1 + 3 + 8 = 12

180 ÷ 12 = 15

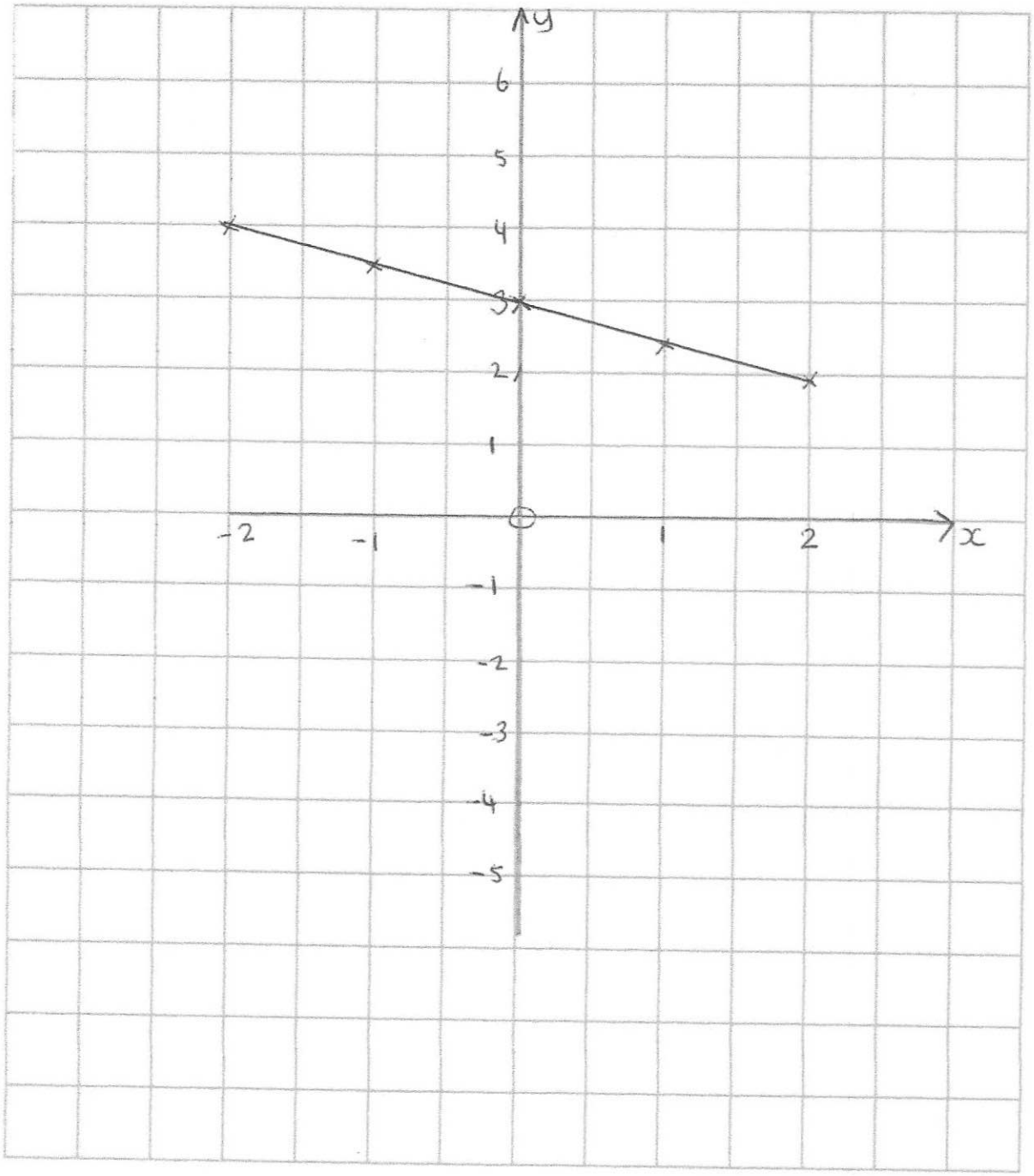
smallest angle = 1 × 15 = 15°

largest angle = 8 × 15 = 120°

120 − 15 = 105°

11 . On the grid, draw $x + 2y = 6$ for values of x from –2 to 2.

x	0	1	2	-1	-2
y	3	2·5	2	3·5	4



(4)