



**Formula List**

Area,  $A$ , of triangle, base  $b$ , height  $h$ .  $A = \frac{1}{2}bh$

Area,  $A$ , of circle, radius  $r$ .  $A = \pi r^2$

Circumference,  $C$ , of circle, radius  $r$ .  $C = 2\pi r$

Curved surface area,  $A$ , of cylinder of radius  $r$ , height  $h$ .  $A = 2\pi rh$

Curved surface area,  $A$ , of cone of radius  $r$ , sloping edge  $l$ .  $A = \pi rl$

Curved surface area,  $A$ , of sphere of radius  $r$ .  $A = 4\pi r^2$

Volume,  $V$ , of prism, cross-sectional area  $A$ , length  $l$ .  $V = Al$

Volume,  $V$ , of pyramid, base area  $A$ , height  $h$ .  $V = \frac{1}{3}Ah$

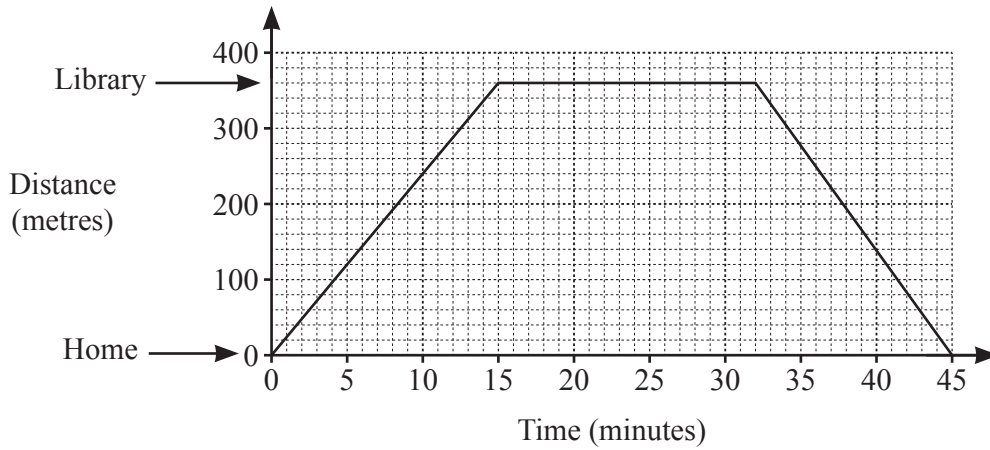
Volume,  $V$ , of cylinder of radius  $r$ , height  $h$ .  $V = \pi r^2 h$

Volume,  $V$ , of cone of radius  $r$ , height  $h$ .  $V = \frac{1}{3}\pi r^2 h$

Volume,  $V$ , of sphere of radius  $r$ .  $V = \frac{4}{3}\pi r^3$



7



The travel graph shows Suba’s bicycle journey from her home to the library and back.

(a) Write down the distance from Suba’s home to the library.

..... m [1]

(b) Write down the number of minutes Suba was in the library.

..... min [1]

8 These are the test results of 12 students.

17 21 9 11 24 21 8 15 12 6 10 21

(a) Find the median.

..... [2]

(b) Write down the mode.

..... [1]

(c) Find the range.

..... [1]

9  $P = \{\text{Prime number less than } 10\}$

Write down the members of set  $P$ .

..... [2]

10 Work out 60% of 35.

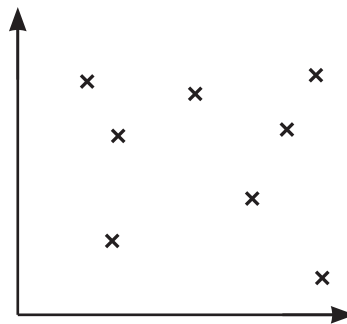
..... [2]

11 Simplify.

$$w \times w \times w$$

..... [1]

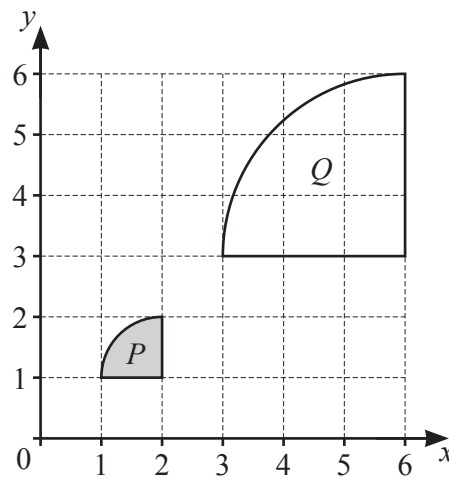
12



What type of correlation is shown on the scatter diagram?

..... [1]

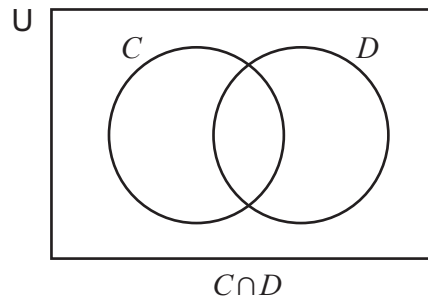
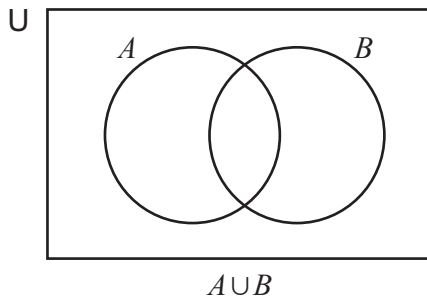
13



Describe fully the **single** transformation that maps shape *P* onto shape *Q*.

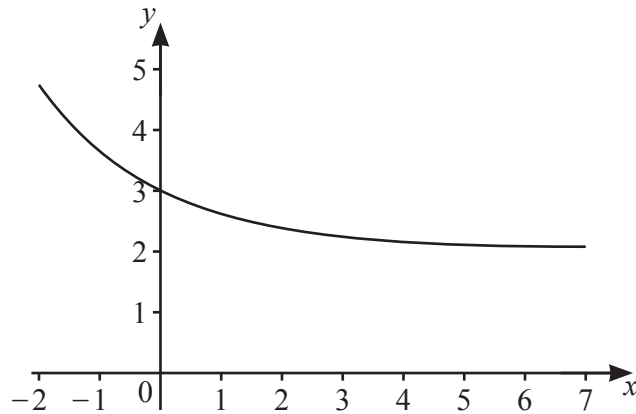
.....  
 ..... [3]

14 Shade the region indicated below each Venn diagram.



[2]

15



The diagram shows the graph of a function with one asymptote.

On the diagram, draw the asymptote.

[1]

16 Solve the inequality  $2x \leq 10$ .

..... [1]

17 Find the highest common factor (HCF) of 70 and 80.

..... [1]

18 A train travels 250 metres in 5 seconds.

Work out its average speed in kilometres per hour.

..... km/h [3]

19 Simplify.

$$\frac{12}{x} \times \frac{5}{2y}$$

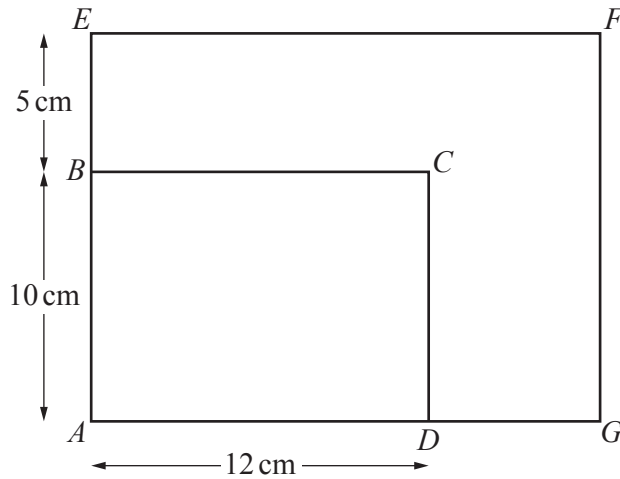
..... [2]

20  $f(x) = \frac{x-3}{2}$  for  $-5 \leq x \leq 21$

Find the range of  $f(x)$ .

..... [2]

21



NOT TO  
SCALE

Rectangles  $ABCD$  and  $AEFG$  are mathematically similar.

Work out  $EF$ .

$EF =$  .....cm [2]

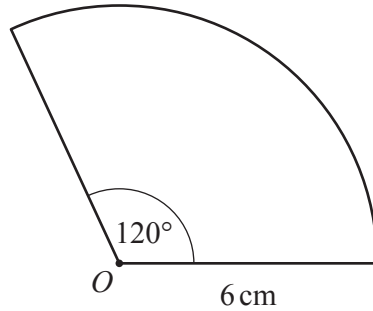
**Questions 22 and 23 are printed on the next page.**

22  $A$  is the point  $(-3, 1)$  and  $B$  is the point  $(1, 3)$ .

Find the gradient of the line  $AB$ .

..... [2]

23



NOT TO  
SCALE

The diagram shows a sector of a circle centre  $O$ , radius 6 cm.

Find the area of the sector.

Leave your answer in terms of  $\pi$ .

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

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