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11 Chengbo sold a house for 180 000 yuan.

The amount for which he sold the house is 24% more than the amount he paid for the house.

- (a) Work out how much Chengbo paid for the house.  
Give your answer correct to 3 significant figures.

..... yuan  
(3)

Zhi bought a house on 1st January 2017  
When she bought the house, its value was 120 000 yuan.

The value of the house increased by 1.8% per year.

- (b) Work out the value of Zhi's house on 1st January 2020  
Give your answer correct to 3 significant figures.

..... yuan  
(3)

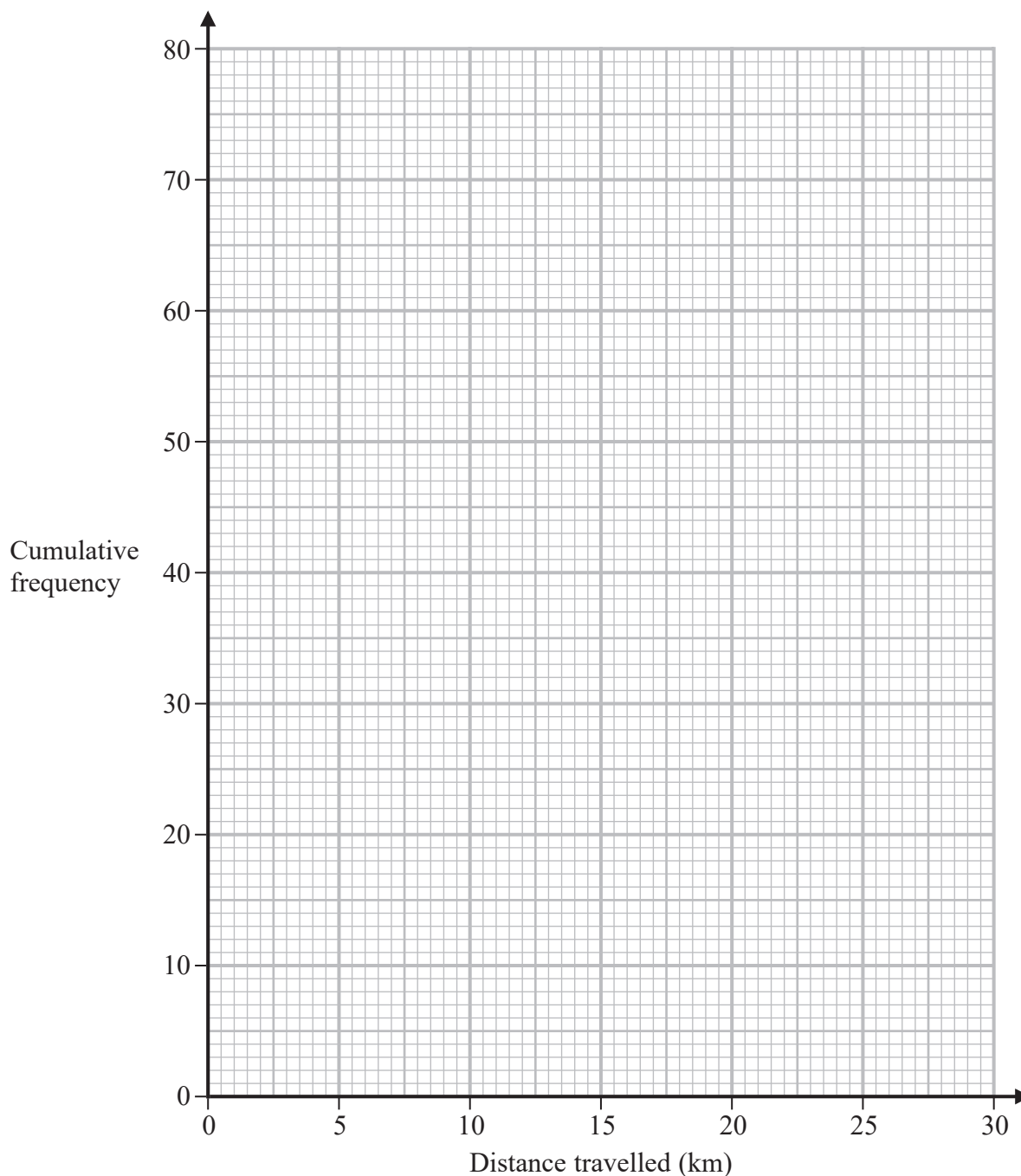
(Total for Question 11 is 6 marks)



- 12 The cumulative frequency table gives information about the distance, in kilometres, that each of 80 workers travel from home to work at Office *A*.

Distance travelled ( $d$ km)	Cumulative frequency
$0 < d \leq 5$	17
$0 < d \leq 10$	32
$0 < d \leq 15$	57
$0 < d \leq 20$	70
$0 < d \leq 25$	76
$0 < d \leq 30$	80

- (a) On the grid below, draw a cumulative frequency graph for the information in the table.



(2)



(b) Use your graph to find an estimate for the median distance travelled.

..... km  
(1)

(c) Use your graph to find an estimate for the interquartile range of the distances travelled.

..... km  
(2)

For Office *B*, the median distance workers travel from home to work is 15 km and the interquartile range is 5 km.

(d) Use the information above to compare the distances that workers at Office *A* and workers at Office *B* travel from home to work.  
Write down **two** comparisons.

1.....

.....

.....

2.....

.....

.....

(2)

**(Total for Question 12 is 7 marks)**





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Emilie is going to take part in a third race.

If she wins both of the first two races, the probability that she will win the third race is 0.6

If she wins exactly one of the first two races, the probability that she will win the third race is 0.3

(c) Work out the probability that Emilie will win exactly two of the three races.

.....  
(3)

**(Total for Question 13 is 8 marks)**



P 6 5 9 1 8 A 0 1 5 2 8

14 Simplify fully  $\left(\frac{9x^4}{16y^{10}}\right)^{-\frac{1}{2}}$

.....  
(Total for Question 14 is 3 marks)

15 (a) Complete the table of values for  $y = \frac{1}{x}(x^2 + 4)$

$x$	0.25	0.5	1	2	4	8
$y$	16.25					8.5

(2)

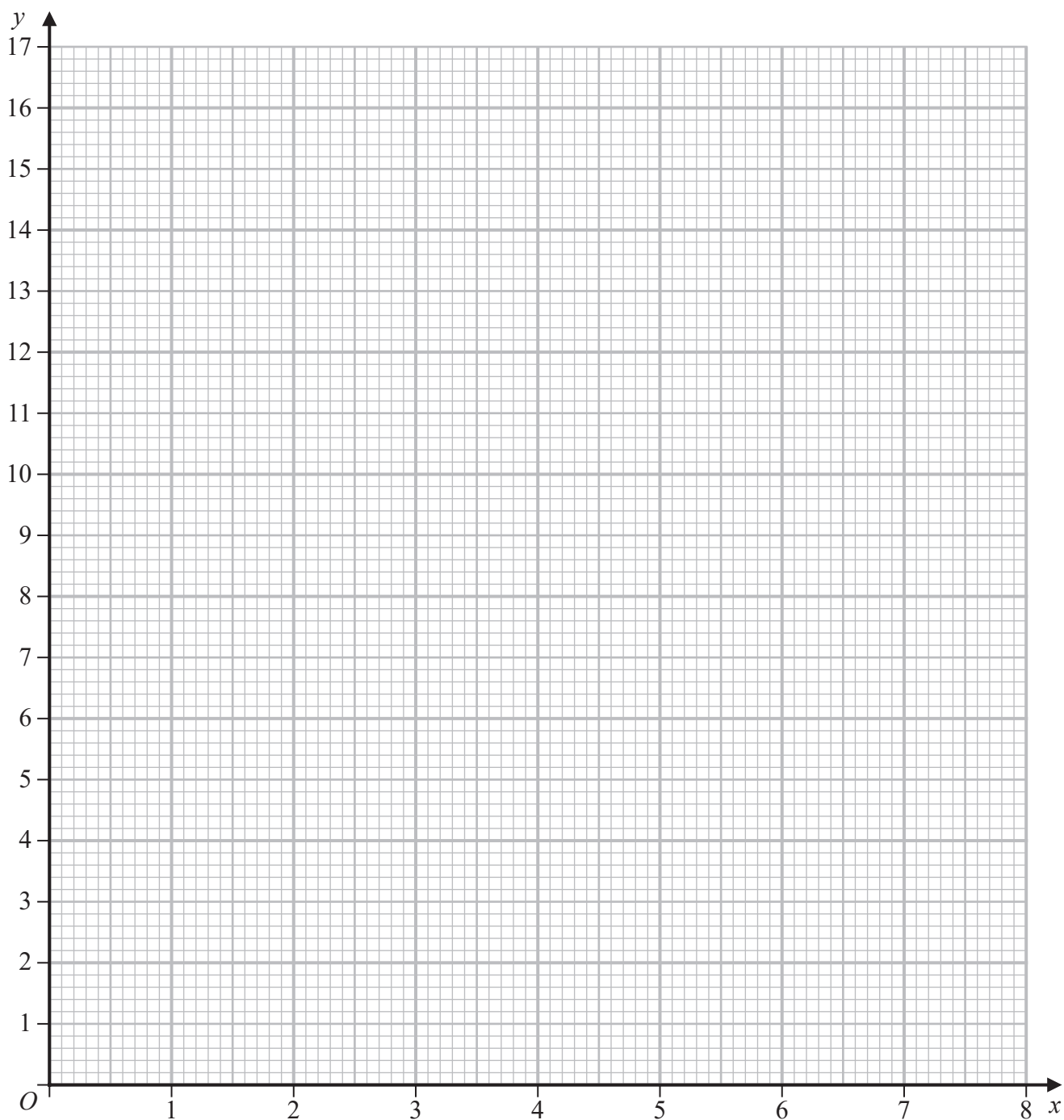
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(b) On the grid, draw the graph of  $y = \frac{1}{x}(x^2 + 4)$  for  $0.25 \leq x \leq 8$



(2)

(Total for Question 15 is 4 marks)



P 6 5 9 1 8 A 0 1 7 2 8

16  $A$  is inversely proportional to the square of  $r$

$$A = 5 \text{ when } r = 0.3$$

(a) Find a formula for  $A$  in terms of  $r$

.....  
(3)

(b) Find the value of  $A$  when  $r = 7.5A$

$$A = \text{.....}$$

(3)

**(Total for Question 16 is 6 marks)**

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