

- 12 The table gives information about the times, in minutes, taken by 80 customers to do their shopping in a supermarket.

Time taken (t minutes)	Frequency
$0 < t \leq 10$	7
$10 < t \leq 20$	26
$20 < t \leq 30$	24
$30 < t \leq 40$	14
$40 < t \leq 50$	7
$50 < t \leq 60$	2

- (a) Complete the cumulative frequency table.

Time taken (t minutes)	Cumulative frequency
$0 < t \leq 10$	
$0 < t \leq 20$	
$0 < t \leq 30$	
$0 < t \leq 40$	
$0 < t \leq 50$	
$0 < t \leq 60$	

(1)

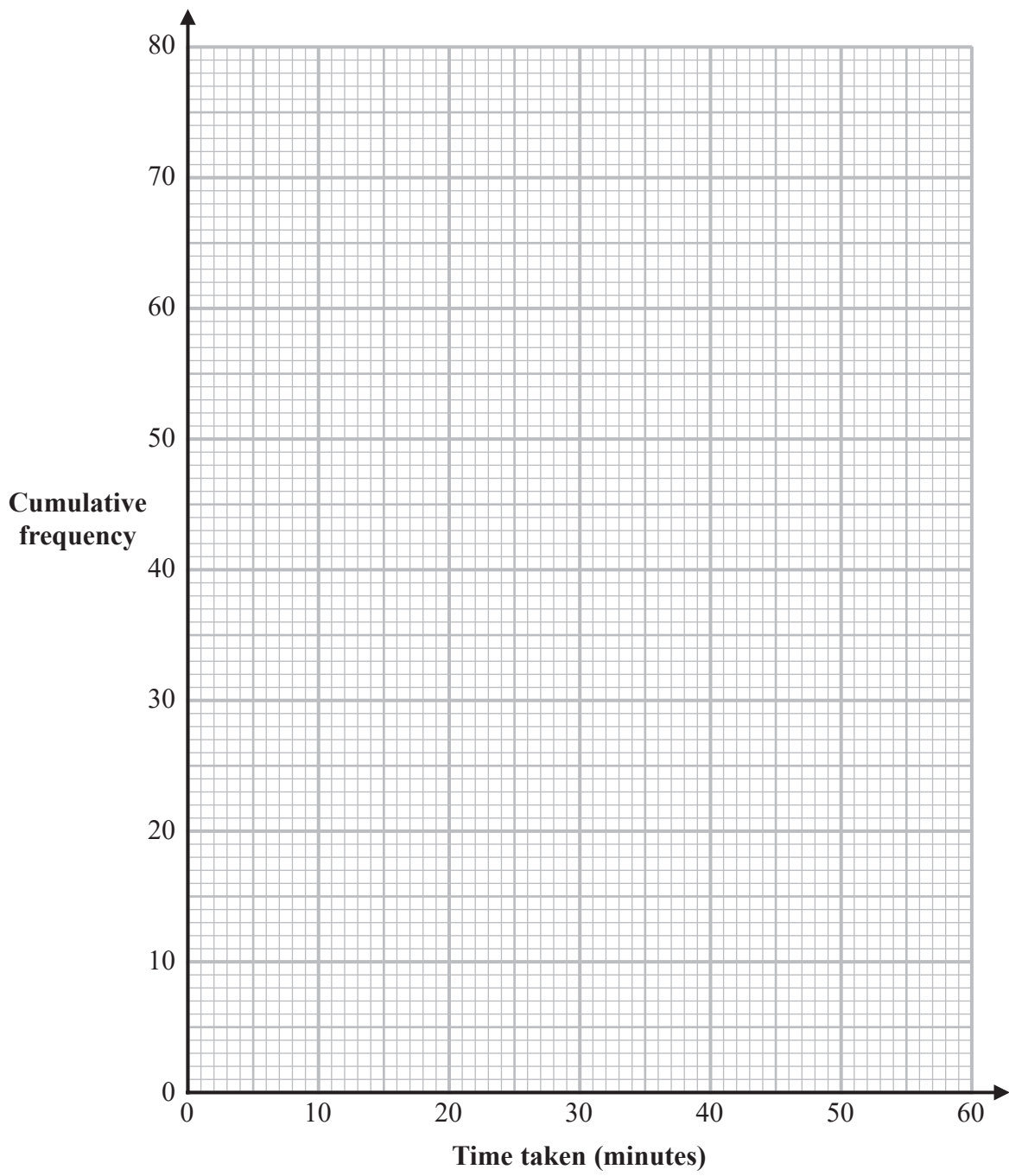
- (b) On the grid opposite, draw a cumulative frequency graph for your table.



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(2)

(c) Use your graph to find an estimate for the median time taken.

..... minutes

(1)

One of the 80 customers is chosen at random.

(d) Use your graph to find an estimate for the probability that the time taken by this customer was more than 42 minutes.

.....
(2)

(Total for Question 12 is 6 marks)



13 (a) Expand and simplify $5x(x + 2)(3x - 4)$

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.....
(3)

(b) Simplify completely $\left(\frac{16w^8}{y^{20}}\right)^{\frac{3}{4}}$

.....
(3)

(Total for Question 13 is 6 marks)

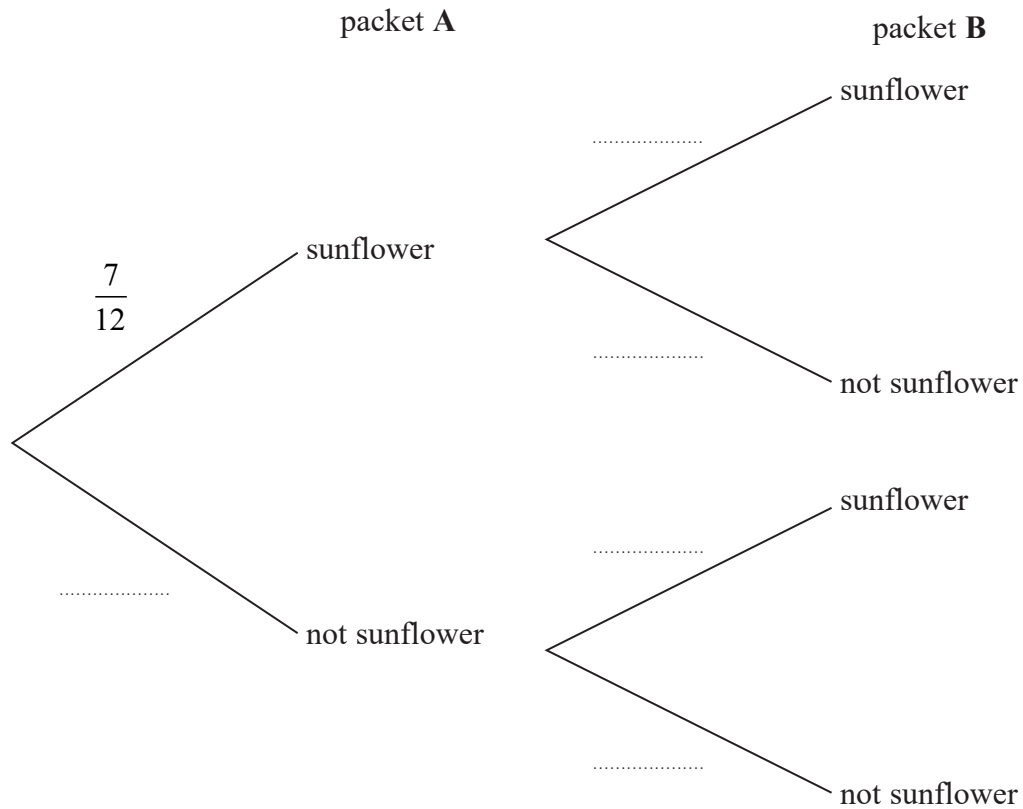


14 Aika has 2 packets of seeds, packet **A** and packet **B**

There are 12 seeds in packet **A** and 7 of these are sunflower seeds.
There are 15 seeds in packet **B** and 8 of these are sunflower seeds.

Aika is going to take at random a seed from packet **A** and a seed from packet **B**

(a) Complete the probability tree diagram.



(2)

(b) Calculate the probability that Aika will take two sunflower seeds.

(2)

(Total for Question 14 is 4 marks)



15 A is inversely proportional to C^2

$A = 40$ when $C = 1.5$

Calculate the value of C when $A = 1000$

$C = \dots\dots\dots$

(Total for Question 15 is 3 marks)

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16 The diagram shows a circle with centre O

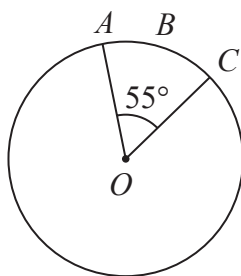


Diagram NOT accurately drawn

A , B and C are points on the circle so that the length of the arc ABC is 5 cm.

Given that angle $AOC = 55^\circ$

work out the area of the circle.

Give your answer correct to one decimal place.

..... cm²

(Total for Question 16 is 4 marks)



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

17 **A** and **B** are two similar vases.

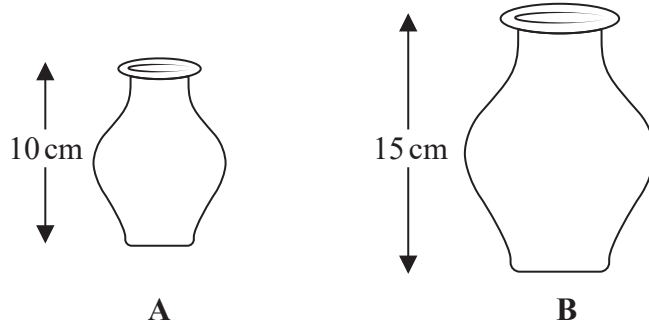


Diagram **NOT** accurately drawn

Vase **A** has height 10 cm.

Vase **B** has height 15 cm.

The difference between the volume of vase **A** and the volume of vase **B** is 1197 cm^3

Calculate the volume of vase **A**

..... cm^3

(Total for Question 17 is 4 marks)

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18 $A = w - \frac{x^2}{y}$

$w = 3.45$ correct to 2 decimal places.

$x = 1.9$ correct to 1 decimal place.

$y = 5$ correct to the nearest whole number.

Work out the lower bound of the value of A

Show your working clearly.

.....
(Total for Question 18 is 3 marks)

