

10 The people working for a company work in Team A or in Team B.

number of people in Team A : number of people in Team B = 3 : 4

$\frac{4}{5}$ of Team A work full time.

24% of Team B work full time.

Work out what fraction of the people working for the company work full time.
Give your fraction in its simplest form.

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(Total for Question 10 is 3 marks)



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11 Simplify fully $\left(\frac{9t^4w^9}{18t^6w^{10}}\right)^{-2}$

.....
(Total for Question 11 is 3 marks)

12 15 people were asked how long, in minutes, they had been waiting for a bus.

Here are the results.

- 2 3 3 4 5 6 6 8 9 10 11 13 14 15 18

Find the interquartile range of these times.

..... minutes

(Total for Question 12 is 2 marks)



13 P, Q, R, S and T are points on a circle with centre O .

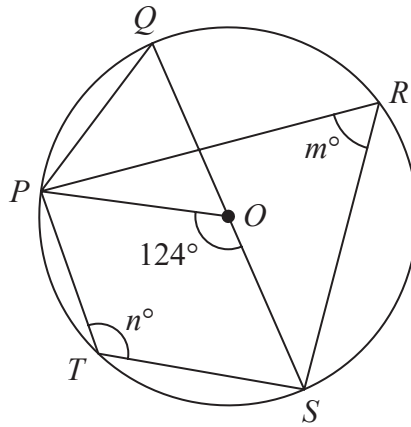


Diagram NOT accurately drawn

QOS is a diameter of the circle.

angle $POS = 124^\circ$ angle $PRS = m^\circ$ angle $PTS = n^\circ$

(a) Find the value of

(i) m

.....

(ii) n

.....

(2)

(b) Find the size of angle QPO .

.....

(1)

(Total for Question 13 is 3 marks)

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14 (a) Solve $\frac{9a - 7}{5} - \frac{3a - 7}{4} = 4.55$

Show clear algebraic working.

$a = \dots\dots\dots$
(3)

(b) Make c the subject of the formula $p = \sqrt{\frac{ac + 8}{3 + c}}$

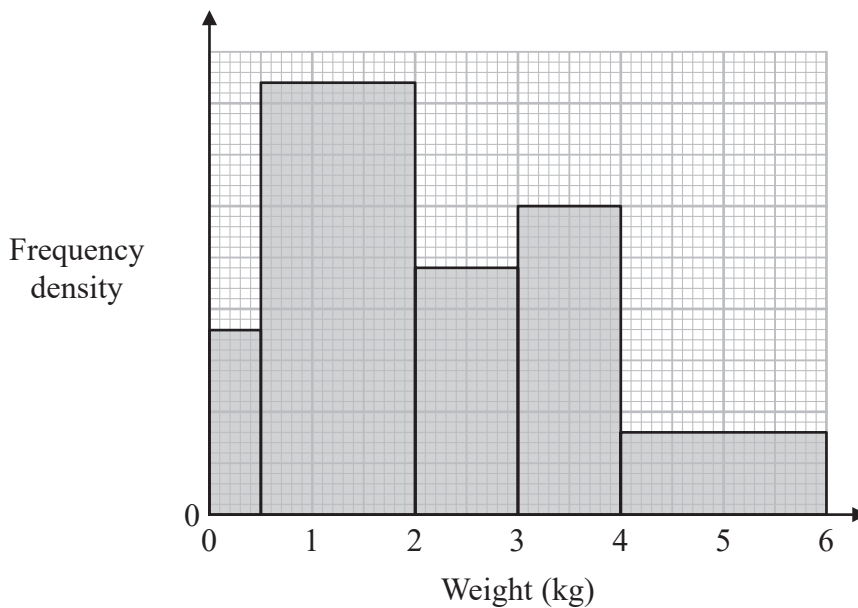
$\dots\dots\dots$
(4)

(Total for Question 14 is 7 marks)



15 A postman records the weight of each parcel that he delivers.

The histogram shows information about the weights of all the parcels that the postman delivered last Monday. No parcels weighed more than 6 kg.



63 of the parcels that the postman delivered last Monday each had a weight between 0.5 kg and 2 kg.

(a) Work out the total number of parcels the postman delivered last Monday.

.....
(3)

The postman picks at random two of the records of the parcels he delivered last Monday.

(b) Work out an estimate for the probability that each parcel weighed more than 2.25 kg.

.....
(3)

(Total for Question 15 is 6 marks)



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16 Some students were asked the following question.

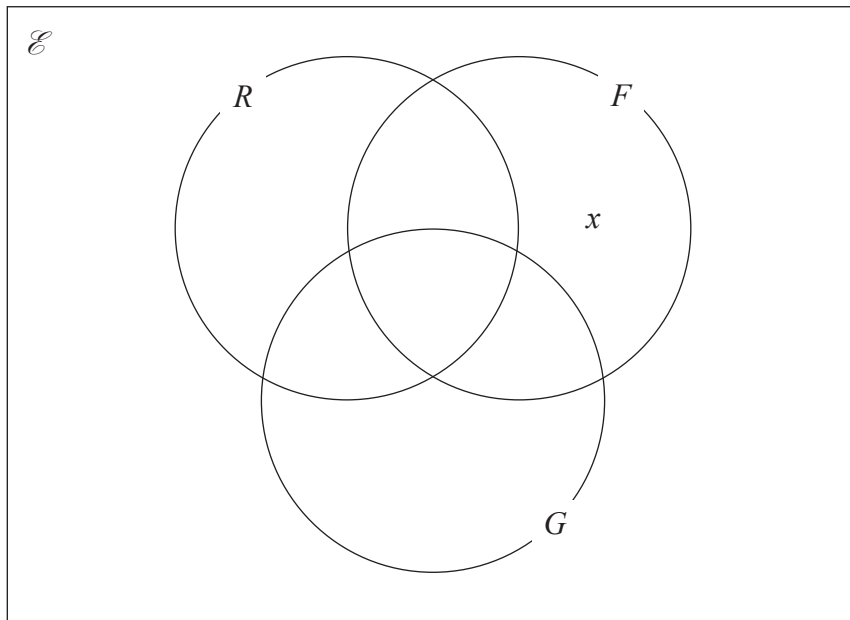
“Which of the subjects Russian (R), French (F) and German (G) do you study?”

Of these students

- 4 study all three of Russian, French and German
- 10 study Russian and French
- 13 study French and German
- 6 study Russian and German
- 24 study German
- 11 study none of the three subjects
- the number who study Russian only is twice the number who study French only.

Let x be the number of students who study French only.

(a) Show all this information on the Venn diagram, giving the number of students in each appropriate subset, in terms of x where necessary.



(3)

Given that the number of students who were asked the question was 80

(b) work out the number of these students that study Russian.

.....
(3)

(Total for Question 16 is 6 marks)



17 The diagram shows a solid prism $ABCDEFGH$.

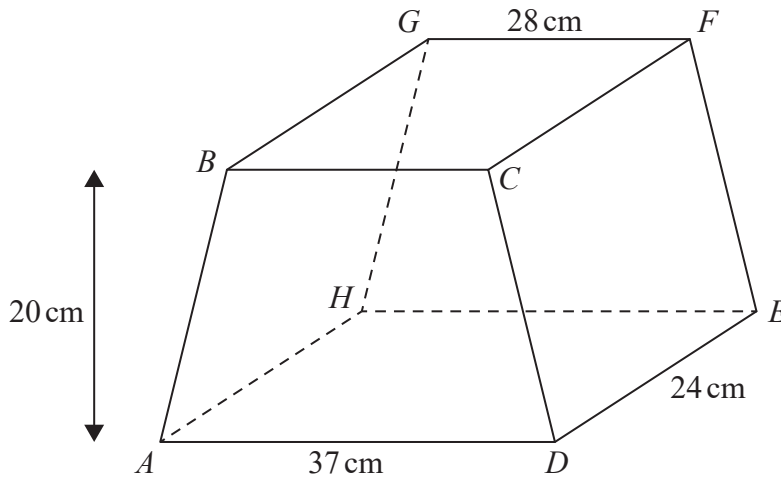


Diagram NOT accurately drawn

The trapezium $ABCD$, in which AD is parallel to BC , is a cross section of the prism.
 The base $ADEH$ of the prism is a horizontal plane.
 $ADEH$ and $BCFG$ are rectangles.
 The midpoint of BC is vertically above the midpoint of AD so that $BA = CD$.

$$AD = 37 \text{ cm} \quad GF = 28 \text{ cm} \quad DE = 24 \text{ cm}$$

The perpendicular distance between edges AD and BC is 20 cm.

(a) Work out the total surface area of the prism.

..... cm^2
(4)

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(b) Calculate the size of the angle between AF and the plane $ADEH$.
Give your answer correct to one decimal place.

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.....
(3)

(Total for Question 17 is 7 marks)

