Please check the examination details below before entering your candidate information

Candidate surname	Other names

Pearson Edexcel
Level 1/Level 2 GCSE (9–1)

Centre Number | | | | | |

Candidate Number | | | | |

Tuesday 5 November 2019

Morning (Time: 1 hour 30 minutes) | Paper Reference **1MA1/1F**

Mathematics

Paper 1 (Non-Calculator)
Foundation Tier

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- You must **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may not be used.**

Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

P58865A

6/1/1/

P 5 8 8 6 5 A 0 1 2 0

Pearson

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Write down the value of the 7 in the number 1074

1 0 7 4
↑ ↑
10s 1s

70

(Total for Question 1 is 1 mark)

2 Write 4.58 correct to 1 decimal place.

4.5 | 8

4.6

(Total for Question 2 is 1 mark)

3 Work out 31.7×100

31.70

3170

(Total for Question 3 is 1 mark)

4 Write the fraction $\frac{28}{70}$ in its simplest form.

$\frac{28}{70} \overset{\div 7}{\underset{\div 7}{}} = \frac{4}{10} \overset{\div 2}{\underset{\div 2}{}} = \frac{2}{5}$

$\frac{2}{5}$

(Total for Question 4 is 1 mark)

5 Write 15% as a decimal.

P $\xrightarrow{\div 100}$ D

0.15 ÷ 100

0.15

(Total for Question 5 is 1 mark)

6 The pictogram shows information about the number of pictures sold in an art shop in each of January, February and March.

January	8 8 8	= 24
February	8 8 8 4	= 28
March	8 8 4	= 20
April	□ [	= 12

Key: □ represents 8 pictures

(a) Write down the number of pictures sold in January.

24

(1)

12 pictures were sold in April. 12 - 8 = 4

(b) Show this information on the pictogram.

(1)

(c) What was the total number of pictures sold in these four months?

Jan = 24
Feb = 28
Mar = 20
Apr = 12 +
84

84

(2)

(Total for Question 6 is 4 marks)

7 Work out the difference, in minutes, between 1 hour 25 minutes and $1\frac{1}{4}$ hours.

$1\frac{1}{4}$ h → 1h + $\frac{1}{4}$ h

60 mins = 1h

$\frac{1}{4}$ of 60 mins = 60 ÷ 4 = 15 mins

$1\frac{1}{4}$ h = 1h 15 mins

1h 25 mins − 1h 15 mins = 10 mins

10 minutes

(Total for Question 7 is 2 marks)

8 Prasha has five blocks of wood.

The total weight of all five blocks of wood is 3 kilograms.
4 of the blocks of wood each have a weight of 650 grams.

Work out the weight, in grams, of the other block of wood.

1 kg = 1000g
×1000

3kg × 1000 = 3000g

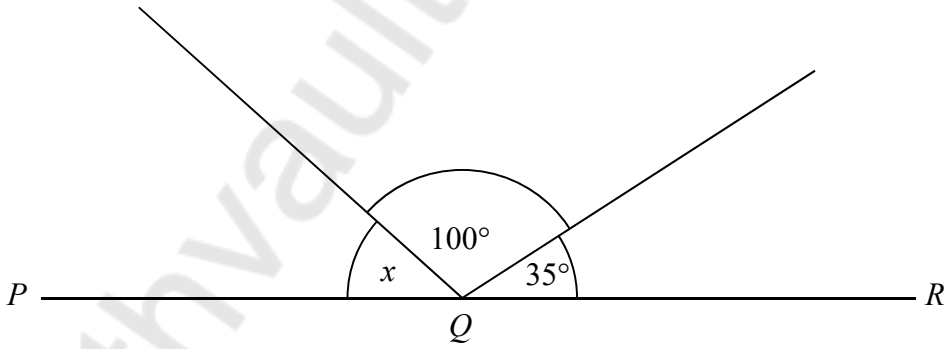
650
× 4
2600g (4 blocks)

3000g − 2600g = 400g

400 grams

(Total for Question 8 is 3 marks)

9 *PQR* is a straight line.



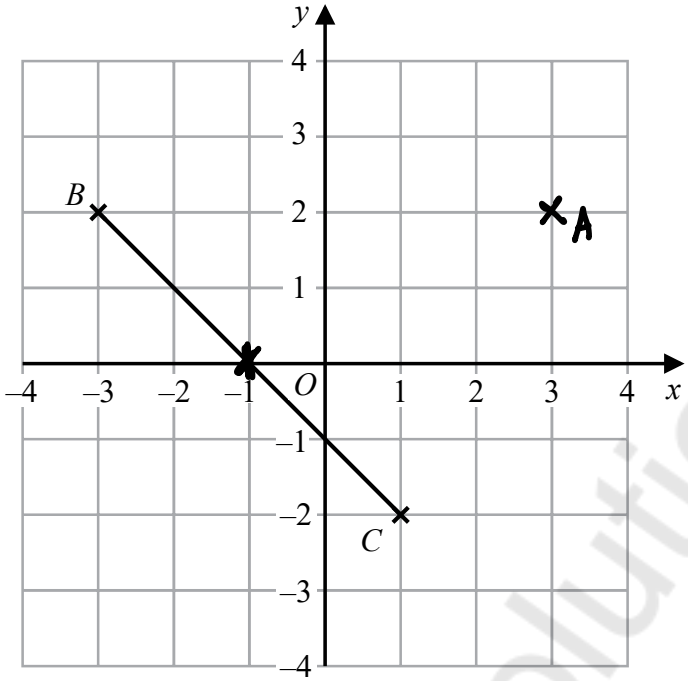
Work out the size of angle *x*.

100° + 35° = 135°
180° − 135° = 45°
x = 45°

45 °

(Total for Question 9 is 2 marks)

10



(a) Plot the point with coordinates (3, 2)
Label this point *A*.

x y

(1)

(b) Write down the coordinates of the midpoint of *BC*.

halfway

(-1 , 0)

(1)

(Total for Question 10 is 2 marks)

11 Mason throws a coin 3 times.
The outcome of each throw is either Heads or Tails.

List all the possible outcomes of the 3 throws.

HHH HHT HTT HTH

TTT TTH THH THT

(Total for Question 11 is 2 marks)

12 Rehan is on holiday in the USA.

He has $200 to spend on clothes.

Rehan buys

1 pair of trainers costing $60
3 T-shirts costing $25 each.

He also wants to buy a jacket costing $80

(a) Has Rehan got enough money to buy the jacket?
You must show how you get your answer.

3 x $25 = $75 (T-shirts)

$75 + $60 = $135

$135 + $80 = $215

$215 > $200

No. He doesn't have enough.

(3)

The trainers cost $60
The exchange rate is $1 = £0.749

Rehan says,

"The trainers cost less than £40"

Rehan is wrong.

(b) Using a suitable approximation, show working to explain why.

0.749 ≈ 0.7

$1 = £0.7 (÷0.7 / x0.7)

$60 x 0.7 = £42

x10

60 x 7 = 420

÷10

42

£42 > £40

(2)

(Total for Question 12 is 5 marks)

13 (a) Simplify $2a \times 5b$

$2 \times 5 = 10$

10ab

(1)

(b) Simplify $3x + 2y + 5x - y$

$8x + y$

8x +y

(2)

(Total for Question 13 is 3 marks)

14 Work out 23×15

$$\begin{array}{r} {}^{1}2\,3 \\ \times\ 1\,5 \\ \hline 1\,1\,5 \\ +\ 2\,3\,0 \\ \hline 3\,4\,5 \end{array}$$

345

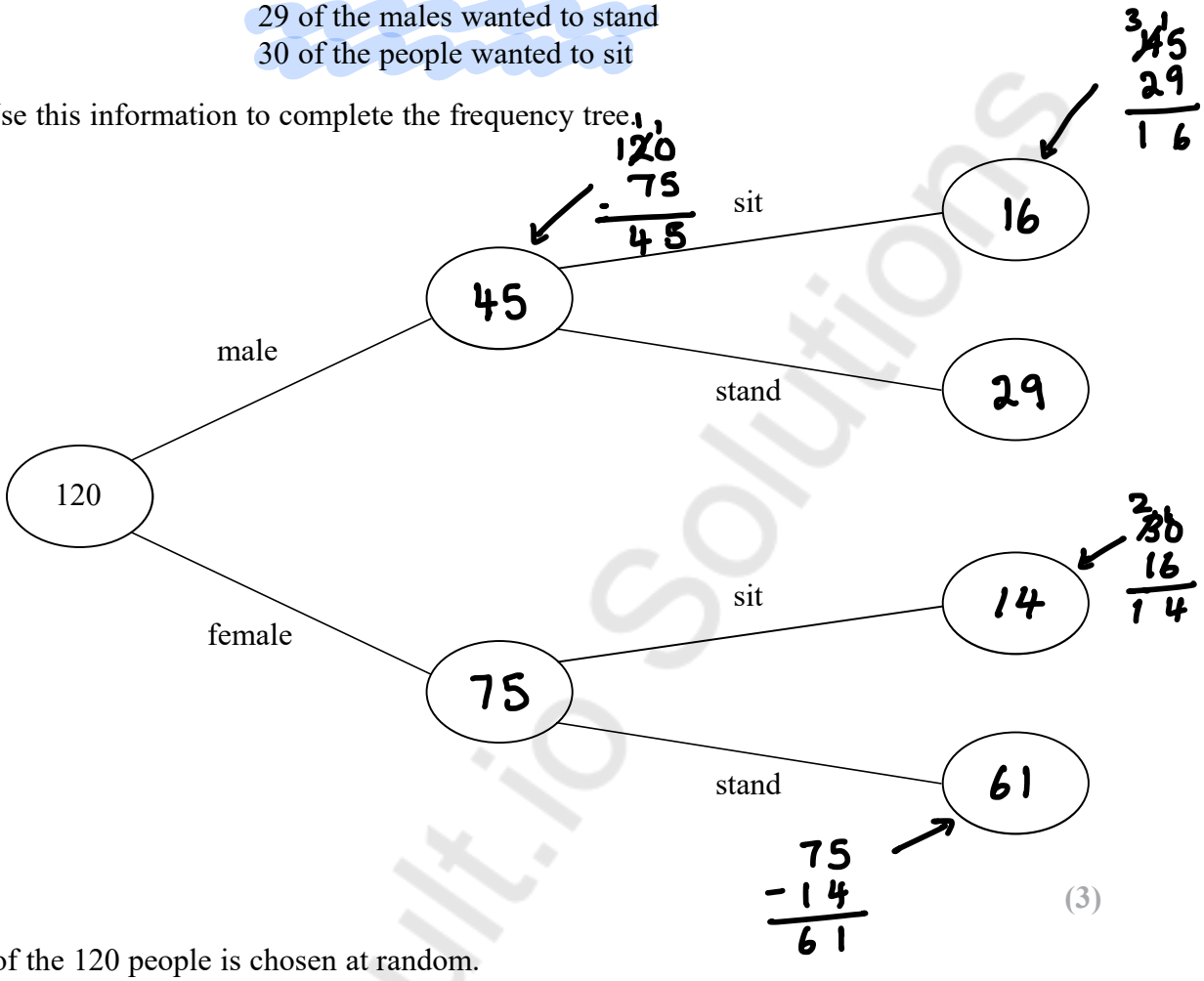
(Total for Question 14 is 2 marks)

15 120 people were at a hockey match.

Each person was asked if they wanted to stand or to sit to watch the match.

75 of the people were female
29 of the males wanted to stand
30 of the people wanted to sit

(a) Use this information to complete the frequency tree.



(3)

One of the 120 people is chosen at random.

(b) Write down the probability that this person is a male who wanted to stand.

$\frac{\text{males stand}}{\text{total people}} = \frac{29}{120}$

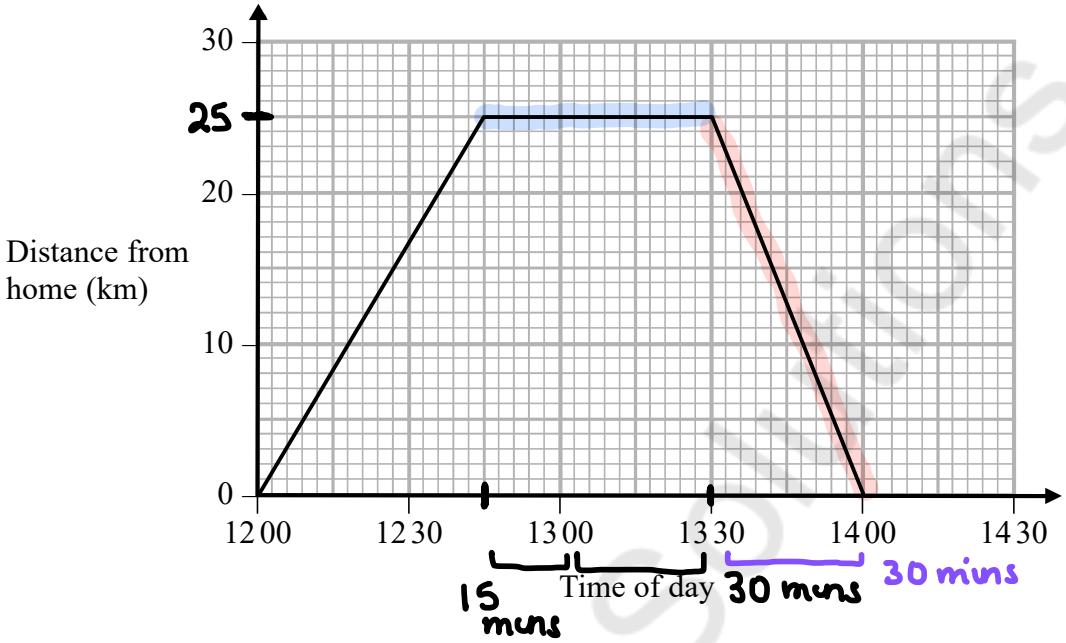
$\frac{29}{120}$

(1)

(Total for Question 15 is 4 marks)

16 Steve drove from his home to his friend's house.
He stayed at his friend's house and then drove home.

Here is Steve's travel graph.



(a) For how many minutes did Steve stay at his friend's house?

15 + 30 = 45

45 minutes

(1)

(b) What was Steve's average speed on his journey home?

D
S T

$S = \frac{D}{T}$

D = 25km

T = 30 mins = 0.5h
÷60

$S = \frac{25\text{ km}}{0.5\text{ h}}$

= 50 km/h

50 km/h

(2)

(Total for Question 16 is 3 marks)

17 $x - 1 = 2$

Work out the value of $2x^2$

$x - 1 = 2$

$+1 \quad +1$

$x = 3$

$2(3)^2$

$3 \times 3 = 9$

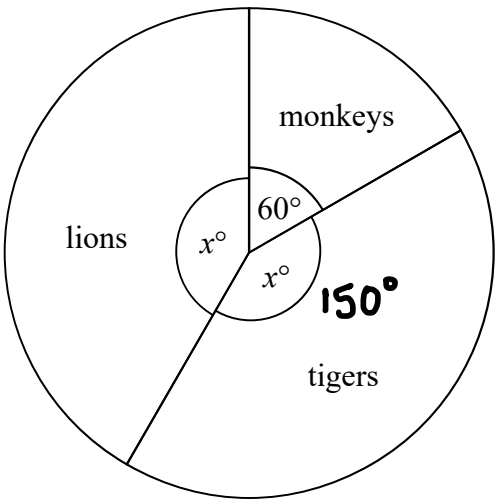
$2(9) = 18$

18

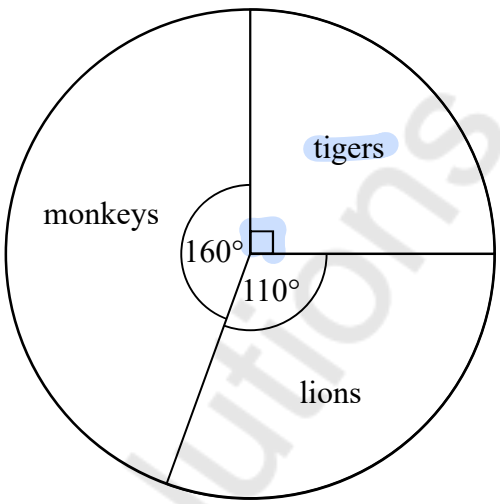
(Total for Question 17 is 3 marks)

18 The pie charts show information about the favourite animal of each student at school **A** and of each student at school **B**.

School **A**



School **B**



There are 480 students at school **A**.

There are 760 students at school **B**.

Henry says,

"The same number of students at each school have tigers as their favourite animal."

Is Henry correct?
You must show how you get your answer.

School A

360 - 60 = 300°

2x = 300°

÷2 ÷2

x = 150°

$\frac{150}{360}$ ÷30 × 480 =

÷30

$\frac{5}{12} \times 480$

$12\overline{)480}$ = 40

40 × 5 = 200

$\frac{5}{12} \times 480 = 200$

like tigers

School B

$\frac{90}{360}$ ÷90 × 760

÷90

$\frac{1}{4} \times 760$

$4\overline{)760}$ = 190

$\frac{1}{4} \times 760 = 190$

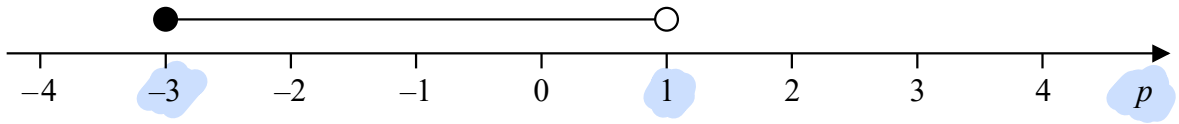
like tigers

Henry is wrong

200 > 190

(Total for Question 18 is 4 marks)

19 Here is a number line.



Write down the inequality shown on the number line.

● ≤ ≥ $p \geqslant -3$

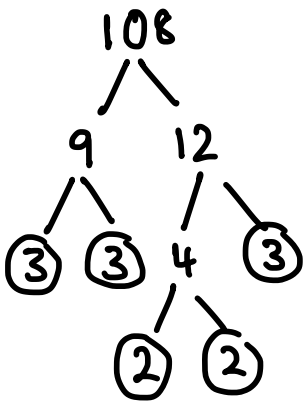
○ < > $p < 1$

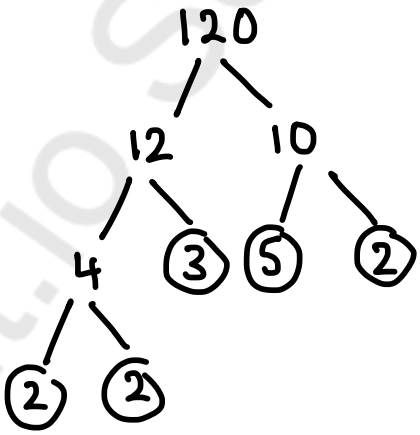
$-3 \leqslant p < 1$

$-3 \leqslant p < 1$

(Total for Question 19 is 2 marks)

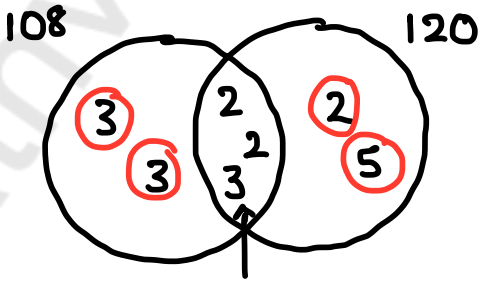
20 Find the Lowest Common Multiple (LCM) of 108 and 120





$108 = 2 \times 2 \times 3 \times 3 \times 3$

$120 = 2 \times 2 \times 2 \times 3 \times 5$



HCF = $2 \times 2 \times 3 = 12$

Lcm = HCF x all other prime factors

= $12 \times 3 \times 3 \times 2 \times 5$

= $36 \times 3 \times 10$

= 108×10

1080

(Total for Question 20 is 3 marks)

21 There are 60 people in a choir.
Half of the people in the choir are women.

The number of women in the choir is 3 times the number of men in the choir.
The rest of the people in the choir are children.

the number of children in the choir : the number of men in the choir = n : 1

Work out the value of n.
You must show how you get your answer.

Women = 60 ÷ 2 = 30

Men = 30 ÷ 3 = 10

Children = 60 - 30 - 10 = 20

÷10 (20 : 10 / 2 : 1) ÷10

n = 2

n = 2

(Total for Question 21 is 4 marks)

22 Work out $1\frac{3}{4} \times 1\frac{1}{3}$

Give your answer as a mixed number.

$1\frac{3}{4} = \frac{7}{4}$ $\quad 1\frac{1}{3} = \frac{4}{3}$

$\frac{7}{4} \times \frac{4}{3} = \frac{28}{12} = \frac{7}{3}$ (÷4 ÷4)

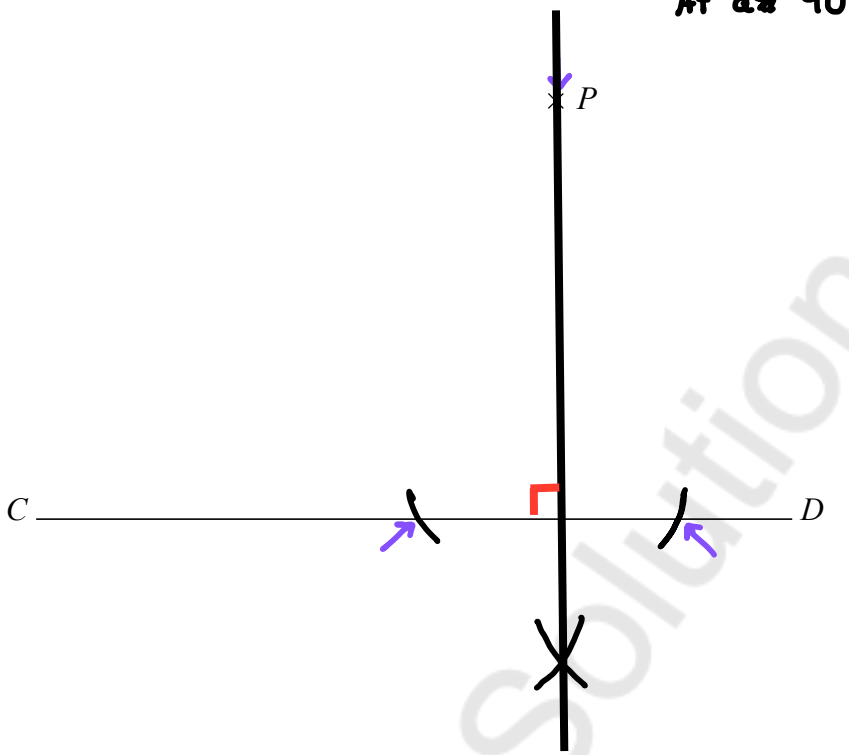
$= 2\frac{1}{3}$

$2\frac{1}{3}$

(Total for Question 22 is 3 marks)

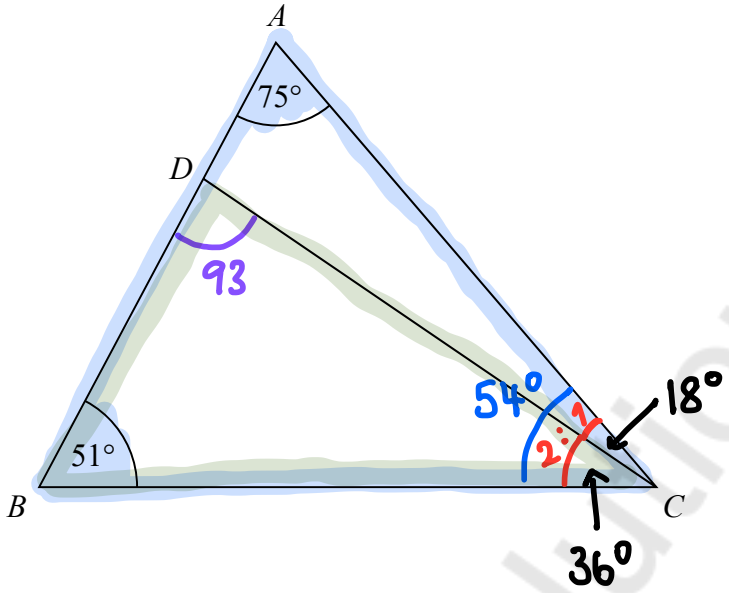
23 Use a ruler and compasses to construct the line from the point P perpendicular to the line CD.
You must show **all** construction lines.

At a 90°



(Total for Question 23 is 2 marks)

24 The diagram shows triangle *ABC*.



ADB is a straight line.

the size of angle *DCB* : the size of angle *ACD* = 2 : 1

Work out the size of angle *BDC*.

$180 - (51 + 75)$

$180 - 126 = 54°$

DCB : ACD

2 : 1

DCB 18° 18°

ACD 18°

} 3 parts

$54° \div 3 = 18°$

$180° - (51 + 36)$

$180° - 87 = 93°$

93 °

(Total for Question 24 is 4 marks)

Mean = $\frac{\text{total weight}}{\text{no. of bricks}}$

25 4 red bricks have a mean weight of 5 kg.
5 blue bricks have a mean weight of 9 kg.
1 green brick has a weight of 6 kg.

Donna says,

"The mean weight of the 10 bricks is less than 7 kg."

Is Donna correct?
You must show how you get your answer.

Red

$5 = \frac{\text{total weight}}{4}$

$\times 4 \qquad \times 4$

20 kg = total weight

Blue

$9 = \frac{\text{total weight}}{5}$

$\times 5 \qquad \times 5$

45 kg = total weight

Green

6 kg

Mean of all 10 bricks

$= \frac{20 + 45 + 6}{10}$

$= \frac{71}{10}$

= 7.1 kg

Donna is incorrect

7.1 > 7

(Total for Question 25 is 3 marks)

26 (a) Simplify $(p^2)^5$

$(x^a)^b = x^{a \times b}$

$(p^2)^5 = p^{2 \times 5} = p^{10}$

p^{10}

(1)

(b) Simplify $12x^7y^3 \div 6x^3y$

$x^a \div x^b = x^{a-b}$

$12 \div 6 = 2$

$x^7 \div x^3 = x^{7-3} = x^4$

$y^3 \div y^1 = y^{3-1} = y^2$

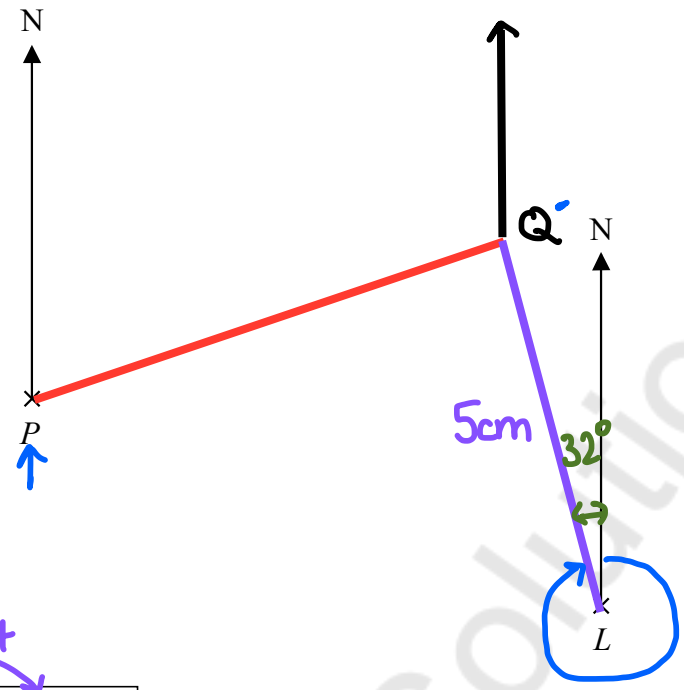
$2x^4y^2$

$2x^4y^2$

(2)

(Total for Question 26 is 3 marks)

27 The accurate scale drawing shows the positions of port P and a lighthouse L.



x4

Scale: 1 cm represents 4 km.

Aleena sails her boat from port P on a bearing of 070°

She sails for $1\frac{1}{2}$ hours at an average speed of 12 km/h to a port Q.

Find

(i) the distance, in km, of port Q from lighthouse L, 5cm x 4 = 20 km

(ii) the bearing of port Q from lighthouse L. 360 − 32 = 328°

D
S T

D = S x T

= 12 x 1.5

↓x10

12x15 = 180

↓÷10

18

12 x 1.5 = 18 km

S = 12 km/h

T = $1\frac{1}{2}$h = 1.5h

1cm = 4km

÷4

4.5

4 | 18.20

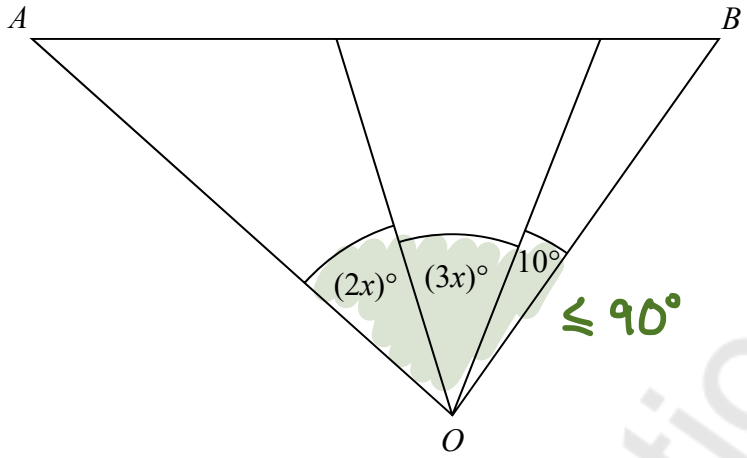
4.5cm

distance QL = 20 km

bearing of Q from L = 328 °

(Total for Question 27 is 5 marks)

28 The diagram shows triangle AOB.



Angle AOB is **not** an obtuse angle.

90 to 180°

Find the greatest value of x.
You must show all your working.

$2x + 3x + 10 \leq 90$

$5x + 10 \leq 90$

$-10 \quad -10$

$5x \leq 80$

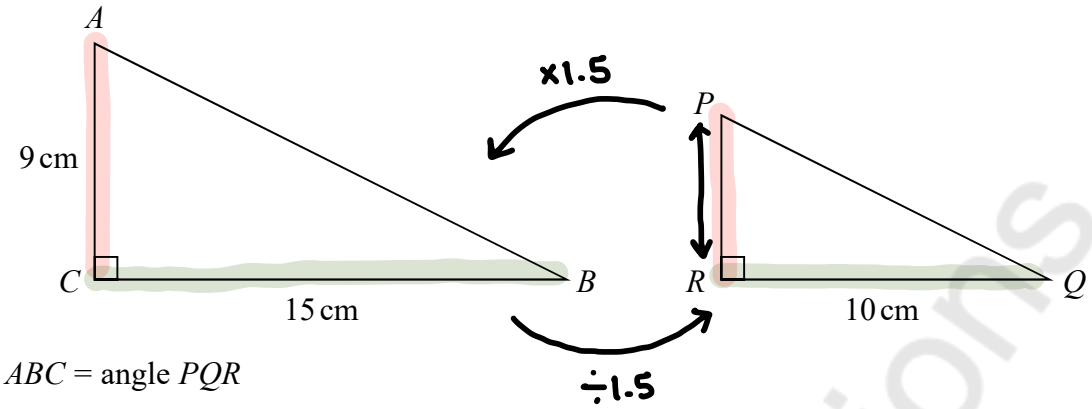
$\div 5 \qquad \div 5$

$x \leq 16$

16

(Total for Question 28 is 3 marks)

29 *ABC* and *PQR* are similar right-angled triangles.



angle *ABC* = angle *PQR*

(a) Work out the length of *PR*.

SF = 15 ÷ 10 = 1.5

PR = 9 ÷ 1.5 = 6 cm
×10 ×10

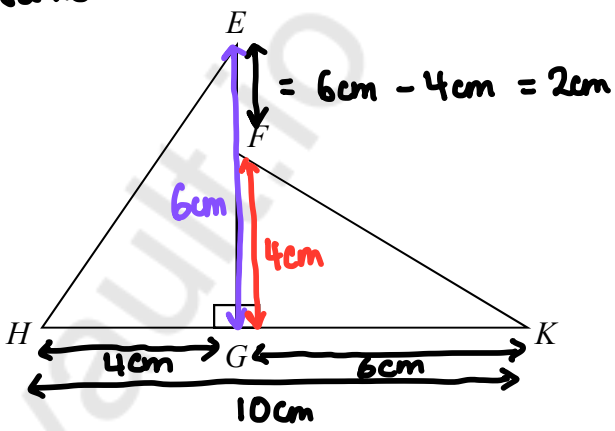
90 ÷ 15 = 6
15 30 45 60 75 90

6 cm

(2)

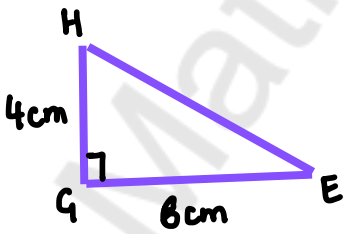
Triangle *EGH* is congruent to triangle *KGF*.

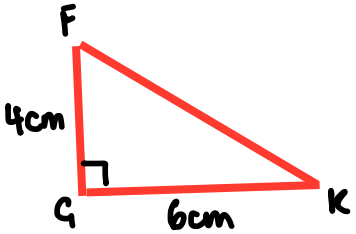
exact same



HK = 10 cm.
HG = 4 cm.

(b) Work out the length of *EF*.





2 cm

(2)

(Total for Question 29 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS