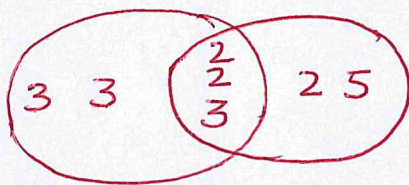
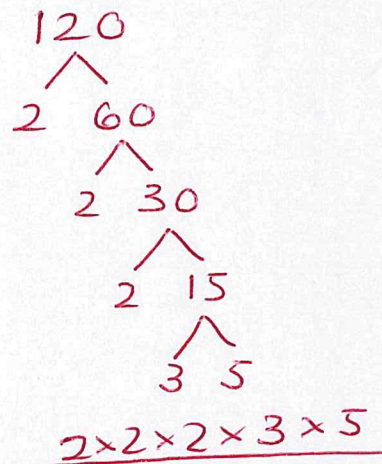
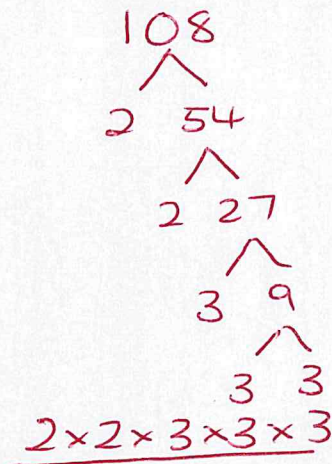


20/1 Find the Lowest Common Multiple (LCM) of 108 and 120



everything = LCM

$$\begin{aligned}
 &2^3 \times 3^3 \times 5 \\
 &2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 5 \dots\dots\dots
 \end{aligned}$$

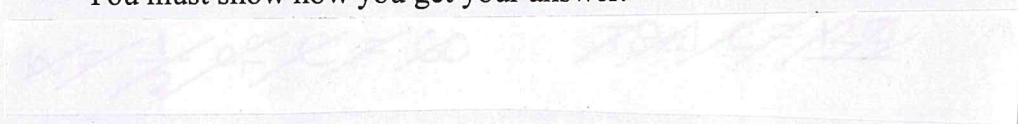
(3)

21/2 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.



$$\begin{aligned}
 \text{Choir} &= 60 \\
 \text{women} &= \frac{1}{2} \text{ of } 60 = 30 \\
 \text{men} &= 30 \div 3 = 10 \\
 \text{Children} &= 60 - 40 = 20
 \end{aligned}$$

$$\begin{aligned}
 C : M \\
 20 : 10 \\
 2 : 1 \\
 n : 1
 \end{aligned}$$

$$n = \underline{2} \dots\dots\dots$$

(4)

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

Give your answer as a mixed number.

$$= \frac{7}{4} \times \frac{4}{3}$$

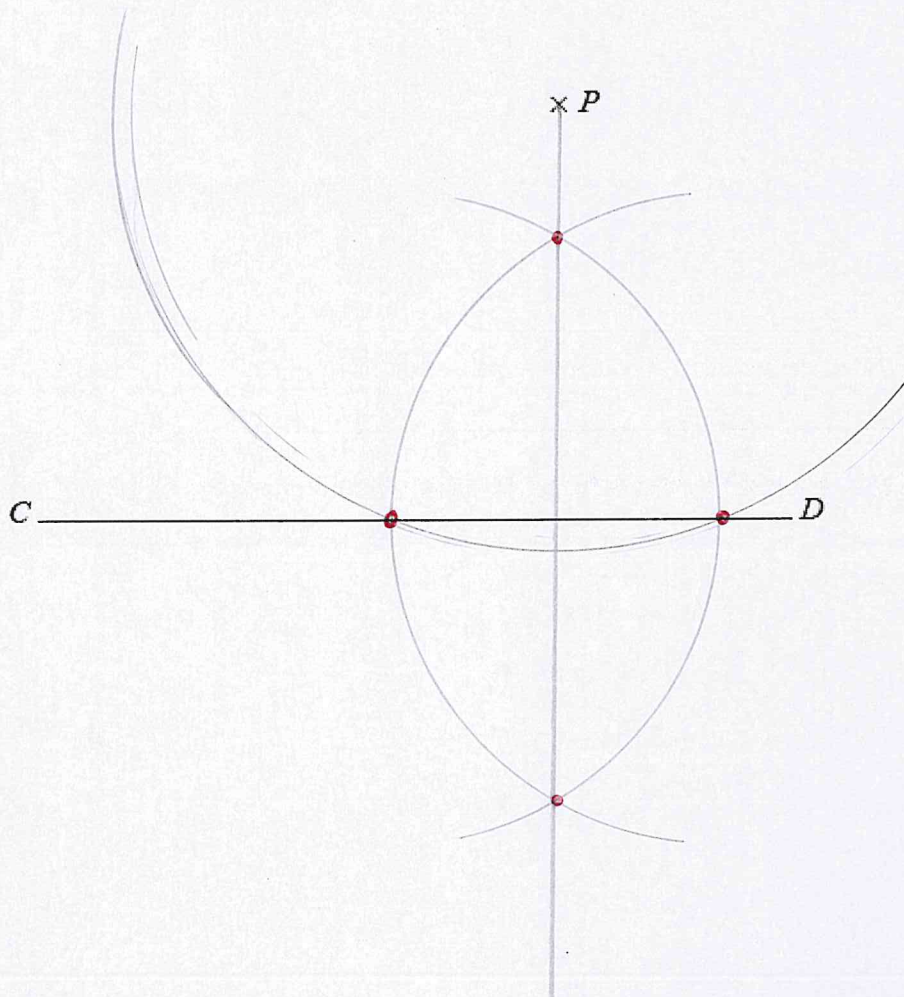
$$= \frac{7}{3}$$

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

$2\frac{1}{3}$

(3)

23/4 Use a ruler and compasses to construct the line from the point P perpendicular to the line CD .
You must show **all** construction lines.



(2)

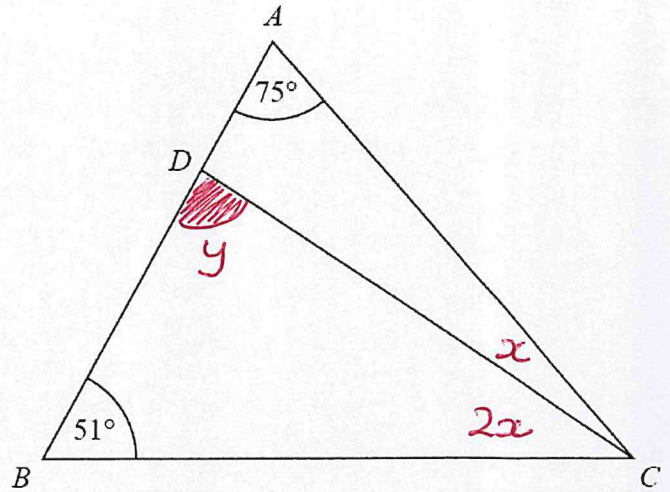
24/5 The diagram shows triangle ABC .

ADB is a straight line.

the size of angle DCB : the size of angle ACD

= 2 : 1

Work out the size of angle BDC .



$$3x + 51 + 75 = 180$$

$$3x + 126 = 180$$

$$3x = 54$$

$$x = \frac{54}{3} = 18^\circ$$

$$2x = \underline{\underline{36}}$$

$$y + 51 + 36 = 180$$

$$y + 87 = 180$$

$$\underline{\underline{y = 93^\circ}}$$

93

(4)

25/6 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.

$$\text{Total weight reds} = 4 \times 5 = 20$$

$$\text{Total weight blue} = 5 \times 9 = 45$$

$$\text{Total weight green} = 1 \times 6 = 6$$

$$\text{Total weight} = 71 \text{ kg}$$

$$\text{Mean weight} = \frac{71}{10} = 7.1 \text{ kg}$$

Donna is incorrect

(3)

26/7 (a) Simplify $(p^2)^5$

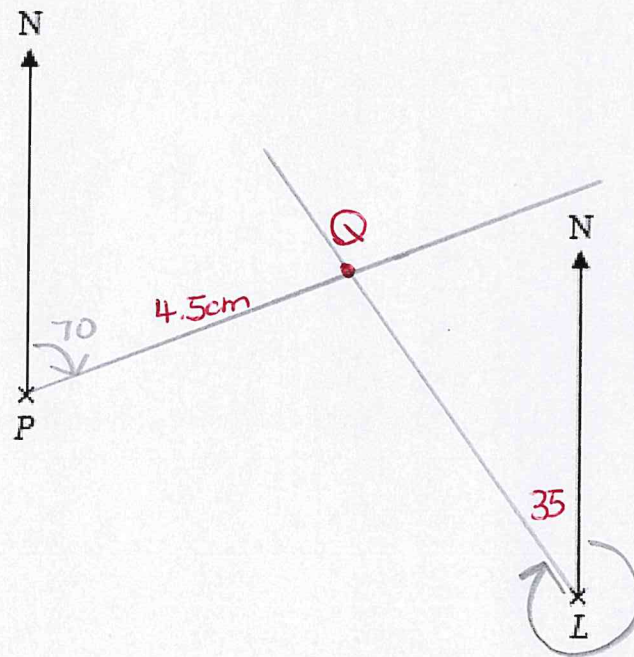
p^{10} (1)

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

$$\frac{12x^7y^3}{6x^3y}$$

$2x^4y^2$ (2)

27/8 The accurate scale drawing shows the positions of port P and a lighthouse L .



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 , (ii) the bearing of port Q from lighthouse L .

Distance in $1\frac{1}{2}h = 12 \times 1\frac{1}{2} = 18 \text{ km}$ $18 \div 4 = 4.5 \text{ cm}$

$LQ = 5.2 \text{ cm} = 5.2 \times 4 = 10.8 \text{ km}$

$360 - 35 = 325$

distance $QL = \dots 10.8 \dots \text{ km}$
 bearing of Q from $L = \dots 325 \dots ^\circ$ (4)

TOTAL FOR PAPER: 26 MARKS