



	ANSWERS	MARKS	REMARKS																		
5.	<table border="1" style="margin-left: 20px;"> <tr><td>2</td><td>60</td><td>42</td></tr> <tr><td>2</td><td>30</td><td>21</td></tr> <tr><td>3</td><td>15</td><td>21</td></tr> <tr><td>5</td><td>5</td><td>4</td></tr> <tr><td>7</td><td>1</td><td>7</td></tr> <tr><td></td><td>1</td><td>7</td></tr> </table> <p>LCM = <math>4 \times 3 \times 35 = 420\text{cm}</math>  <math>4.2 \times 4.2</math>  <math>= 17.64\text{cm}^2</math></p>	2	60	42	2	30	21	3	15	21	5	5	4	7	1	7		1	7	M1 M1 A1	
2	60	42																			
2	30	21																			
3	15	21																			
5	5	4																			
7	1	7																			
	1	7																			
6.	$\frac{1200 \times 13.43 \times 26.74}{1}$ $= 43942$ <p>b) <math>1200 \times 13.43</math>  <math>= 16116</math></p>	M1 A1  M1 A1 4																			
7.	$x + 5 < 3x + 2$ $3 < 2x$ $1.5 < x$ $3x + 2 < x + 11$ $2x < 9$ $x < 4.5$  Integral values 2 3 4	M1     M1   A1 3																			
8.	$AB = \begin{pmatrix} 8 \\ 4 \end{pmatrix}$  $AB = 1BC$  $\therefore AB$ is parallel to $BC$  $B$ is their common point  hence $A B$ and $C$ are collinear	B1   B1  B1 3	Expresses <b>AB &amp; BC</b>  expressing $AB$ in terms of $BC$  correct explanation																		
9.	$3x + 30 + x - 20 = 90$  $4x = 80$  $x = 20^\circ$	M1  M1  A1 3																			

**ANSWERS**

**MARKS**

**REMARKS**

10.  $\pi r^2 h = \frac{4}{3} \pi R^3$   
 $\frac{22}{7} \times 14^2 h = \frac{4}{3} \times \frac{22}{7} \times 6.8^3$   
 $h = \frac{\frac{4}{3} \times 6.8^3}{14^2}$   
 $h = 2.139$

M1M1

M1

A1

4

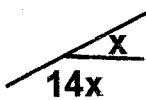
11.  $A.S.F = \frac{48}{108}$   
 $L.S.F = \frac{2}{3}$   
 $V.s.f = \frac{8}{27}$   
 $\frac{8}{27} \times 162$   
 $= 48 \text{ cm}^2$

B1

M1

A1

3

12. 

$15x = 180$

$x = 12$

$\frac{360}{12}$

$= 30$

B1

M1

A1

3

13.  $\frac{-10 + 32 + 6}{3 + 3\frac{1}{3} + \frac{2}{3}} = \frac{28}{7}$   
 $= \frac{28}{7}$   
 $= 4$

M1

numerator

M1

denominator.

A1

3

ANSWERS	MARKS	REMARKS
<p>14. d <math>S_1</math> <math>S_2</math></p> $\frac{1}{3} + \frac{2}{9} + \frac{2}{27} = \frac{17}{27}$ $\frac{10}{27}x = 24000$ $x = 24000 \times \frac{27}{10}$ $= 64800$	M1 M1 A1 3	
<p>15. <math>\frac{1}{2} \times 40(50 + 20) + \frac{1}{2} \times 50(40 + 60)</math></p> $1400 + 2500 = 3900\text{m}$	M1M1 A1 3	
<p>16. <math>\frac{1}{2} + \frac{1}{4} - \frac{1}{3}</math></p> $= \frac{5}{12} = 1h$ $x = \frac{12}{5} \text{ hrs}$ $= 2.4 \text{ hrs}$	M1 M1 A1 3	
<p>17. <math>L = \sqrt{(R - r)^2 + h^2}</math></p> $10 = \sqrt{0.7^2 + h^2}$ $100 = 0.7^2 + h^2$ $h = 9.975 \quad \frac{1}{3}\pi h(R^2 + Rr + r^2)$ $V = \frac{1}{3} \times \frac{22}{7} \times 9.975(1.4^2 + 1.4 \times 0.7 + 0.7^2)$ $V = 35.84$	M1 M1M1 A1 4	any other method accepted
<p>b) <math>\frac{22}{7} \times 10(1.4 + 0.7) \quad \pi L(R + r)</math></p> $\frac{22}{7} \times 21$ $= 66$	M1 M1 A1 3	accept any other method
<p>c) <math>35.84 = L^3</math></p> $\sqrt[3]{35.84} = L$ $3.297 = L$	M1 M1 A1 3	

**ANSWERS**

18.

Class	f Frequency	x Midpoint	fx	c.f	f.d
13 - 15	4	14	56	4	1.3
16 - 18	7	17	119	11	2.3
19 - 21	11	20	220	22	
22 - 24	15	23	345	37	
25 - 27	6	26	156	43	
28 - 30	5	29	145	48	
31 - 33	2	32	64	50	
$\Sigma f = 50$		$\Sigma fx = 1105$			

a) 
$$\frac{1105}{50}$$
  

$$= 22.1$$

b) 
$$\text{Median } 21.5 + \left( \frac{\frac{50}{2} - 22}{15} \right)^3$$
  

$$= 22.1$$

c)

**MARKS**

**REMARKS**

B1

mid points

B1

c.f

M1

A1

M1

A1

B1

upper limits

B1

correct bars

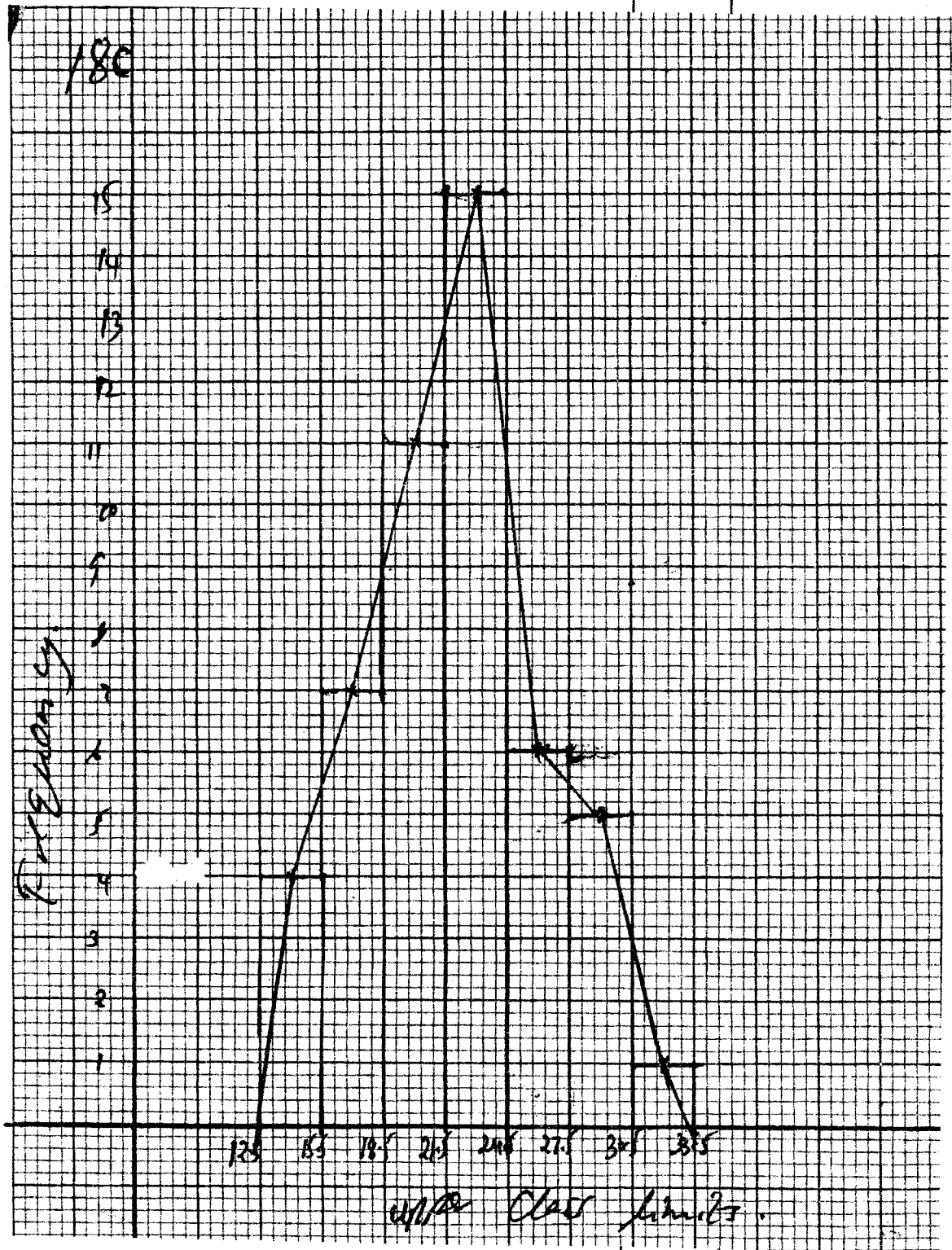
B1

frequency polygon

B1

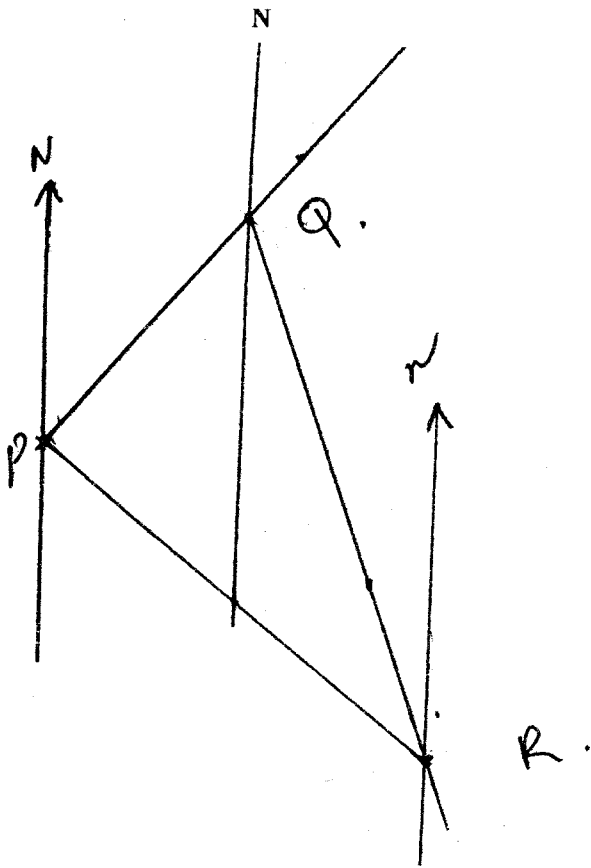
midpoints of the bars

18.c



ANSWERS

19.



$$360 - 50^\circ$$

$$308^\circ$$

$$\text{ii) } PR = 6.5 \pm 0.1 \times 20$$

$$= 130 \text{ km}$$

$$\frac{130}{25} = 5.2 \text{ hrs}$$

MARKS

REMARKS

B1 location of Q

B1 location of P

B1 location of R

B1 drawing of true North.

B1

B1

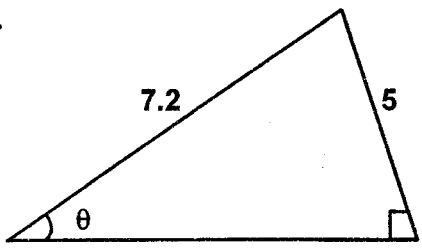
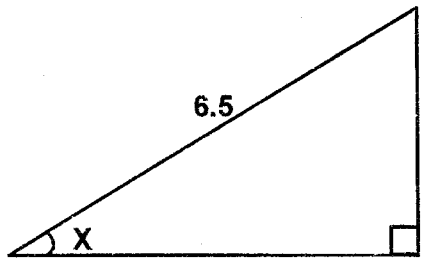
B1

B1

M1

A1

10

ANSWERS	MARKS	REMARKS
<p>20.</p>  $\sin \theta = \frac{5}{7.2}$ $\theta = 43.98 \approx 44$ $POQ = 87.97^\circ$	<p>M1</p> <p>A1</p> <hr/> <p>2</p>	
<p>b) <math>PCQ</math></p> $\sin x = \frac{5}{6.5}$ $x = 50.28$ $PCQ = 100.57^\circ$ 	<p>M1</p> <p>A1</p> <hr/> <p>2</p>	
<p>c)</p> $\frac{87.97}{360} \times \frac{22}{7} \times 7.2^2 - \frac{1}{2} \times 7.2^2 \sin 87.97$ $= 13.09 \text{ cm}$ $\frac{100.57}{360} \times \frac{22}{7} \times 6.5^2 - \frac{1}{2} \times 6.5^2 \sin 100.57$ $= 16.33 \text{ cm}$ $16.33 + 13.09$ $= 29.42 \text{ cm}$	<p>M1</p> <p>M1</p> <p>M1</p> <p>A1</p> <hr/> <p>4</p>	
<p>d)</p> $\frac{22}{7} \times \frac{360 - 87.97}{360} \times 7.2 \times 2$ $= 34.20 \text{ cm}$	<p>M1</p> <p>A1</p> <hr/> <p>2</p>	



**ANSWERS**

21. a)

$$\frac{23}{100} \times 9670 = 2224.10$$

**MARKS**

**REMARKS**

M1

A1

2

b)  $9670 + 2224.10 + 150 + 35$   
 $= 12079.10$

M1

A1

2

c)i)  $12079.10 \times \frac{7}{10}$   
 $12079.10 \times \frac{7}{10} \times \frac{117}{100} = 9892.78$

M1

M1

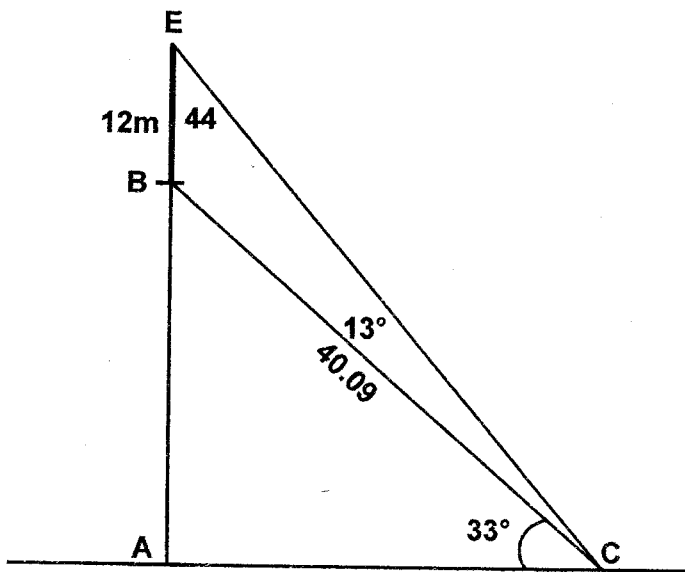
ii)  $12079.10 \times \frac{3}{10} \times \frac{123}{100} = 4457.19$

M1

A1

4

22.



$$\frac{12}{\sin 13} = \frac{BC}{\sin 44}$$

$$BC = \frac{12 \sin 44}{\sin 13} = 40.09$$

M1

M1

$$\cos 33^\circ = \frac{AC}{40.09}$$

$$AC = 40.09 \cos 33$$

$$= 33.62$$

M1

A1

4

ANSWERS	MARKS	REMARKS
b) $\sin 33 = \frac{AB}{40.09}$ $AB = 40.09 \sin 33$ $21.83 + 12$ $= 33.83$	M1 A1 2	
c) $\sin 46 = \frac{33.83}{AE}$ $AE = \frac{33.83}{\sin 46} = 47.03$	M1 A1 2	
d) $\sin 33 = \frac{21.83}{BC}$ $BC = \frac{21.83}{\sin 33} = 40.09$	M1 A1 2	
23. a) $P = KQR$ $18 = K(27 \times 12)$ $\frac{1}{18} = k$ $P = \frac{1}{18}QR$ $P = \frac{1}{18} \times 9 \times 30$ $P = 15$	M1  M1 A1 3	
$60 = \frac{1}{80} \times 30 \times R$ $R = \frac{60 \times 18}{30}$ $R = 36$	M1 M1 A1 3	

**ANSWERS**

$$P_1 = 1.12 \times 1.2KQR$$

$$P = KQR$$

$$\left( \frac{1.12 \times 1.2KQR - KQR}{KQR} \right) 100$$

$$= \left( \frac{1.12 \times 1.2 - 1}{1} \right) 100$$

*Increased by 34.4%*

**MARKS**

M1

M1

M1

A1

4

**REMARKS**

24.

