

Memo - Ques 12 - P2

Ques 1 [18]

1.1  $26^{\circ}\text{C} - 4^{\circ}\text{C} = 22^{\circ}\text{C}$  (2)

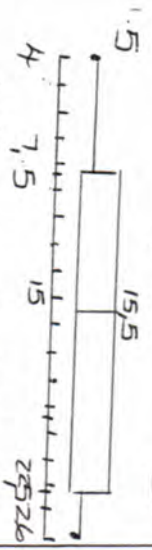
1.2  $\frac{183^{\circ}\text{C}}{12} = 15, 25^{\circ}\text{C}$  (2)

1.3  $\sigma = 7, 6^{\circ}\text{C}$  (2)

1.4 min -  $4^{\circ}\text{C} - 7, 25$

max -  $26^{\circ}\text{C} - 2, 25$

med -  $15, 5^{\circ}$  (5)



scale ✓ box ✓ whisk ✓ (3)

1.6.1  $\frac{183 + 3(3^{\circ}\text{C})}{12} = 16^{\circ}\text{C}$

$\therefore$  incr. by  $0, 75^{\circ}\text{C}$  (2)

1.6.2 min =  $7^{\circ}\text{C}$  max =  $26^{\circ}\text{C}$

$\therefore$  range  $19^{\circ}\text{C}$

Range smaller so deviation decr.

( $\sigma = 6, 7, \dots$ ) (2)

Ques 2 [7]

2.1 Ans. Sht

2.2 straight line (1)

2.3 strong neg. (2)

2.4  $\approx R3, 45$  (3/4) (1)

Ques 3 [5]

Ans Sheet

Ques 4 [9]

4.1.1  $m = \tan 63, 5^{\circ}$

$\therefore m = 2$  (2)

4.1.2  $y = 2x + 6$  (2)

4.1.3  $y = 2x$  (1)

4.2.1  $m_{PB} = \frac{4}{3}$  (1)

4.2.2  $\frac{20-17}{t} = -\frac{3}{t}$

$t = 12$

$12 = -3t + 36$

$t = 8$  (3)

Ques 5 [25]

5.1  $JH = \sqrt{(-2-1)^2 + (1-3)^2}$

$= \sqrt{(-3)^2 + (-2)^2}$

$= \sqrt{13}$  (3)

5.2  $M = \left(-\frac{2+1}{2}, \frac{1+3}{2}\right)$

$= \left(-\frac{1}{2}, 2\right)$  (2)

5.3  $m_{JH} = \frac{2}{3}$  (2)

5.4  $m_{DM} = -4$

$\therefore \theta = \tan^{-1}(-4)$

$= 104, 04^{\circ}$  (2)

5.5 — 5.8 P.S.

Ques 6 [10]

6.1.1)  $(x, y) \rightarrow (y, -x)$

2)  $(-y, -x) \rightarrow (x, -y)$

3)  $(x, -y) \rightarrow (x+3, -y+3)$  (6)

6.2.1 Area  $\Delta EFG$ : Area  $\Delta EFG$

1 :  $(4)^2$  (1)

1 :  $16$  (3)

6.2.1 3 : 48

$\therefore 48$  sq. units (1)

Ques 7 [15]

7.1.1  $DM = \sqrt{(-3)^2 + (4)^2}$

$= \sqrt{25}$

$= 5$  (2)

7.1.2  $(x+3)^2 + (y-4)^2 = 25$

7.1.3  $\frac{x+0}{z} = -3$

$\therefore x = -6$

$\frac{y+0}{z} = 4$  (2)

$y = 8$

7.1.4  $m_{TO} = -\frac{4}{3} \therefore m_L = \frac{\sqrt{3}}{4}$

$y - 8 = \frac{\sqrt{3}}{4}(x + 6)$

$4y - 32 = 3x + 18$

$4y = 3x + 50$

$y = \frac{3}{4}x + \frac{25}{2}$  (2)

7.2.1  $(x-6)^2 + y^2 = 64 + 36$

$\therefore r^2 = 100$

$r = 10$  (2)

7.2.2  $20 - 6 = 14$

$\therefore 6 - 14 = -8$

$\circlearrowleft C = (-8, 0)$  (1)

$(x+8)^2 + y^2 = 100$  (2)

$(x+8)^2 = 100$

$x^2 + 16x + 64 = 100$

$x^2 + 16x - 36 = 0$

$(x-2)(x+18) = 0$

$x_C = 2$  or  $x_B = -18$

$(x-6)^2 = 100$

$x^2 - 12x - 64 = 0$

$(x-16)(x+4) = 0$

$x_E = 16$  or  $x_B = -4$

$\therefore BC = 6$  (3)

OR

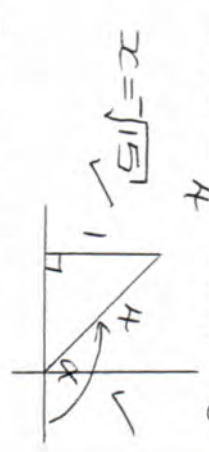
center

$2(10) - 14 = 6$

$\therefore BC = 6$

Ques 8 | 24 |

8.1.1  $\sin \alpha = \frac{1}{4} \sqrt{\cos \alpha} < 0$



$x = \sqrt{15}$  ✓  
 $-\tan \alpha \cdot \sin \alpha$  ✓  
 $= \frac{1}{\sqrt{15}} \cdot \frac{1}{4}$   
 $= \frac{1}{4\sqrt{15}}$  ✓ (5)

8.1.2  $\tan \alpha < \alpha$

$= \frac{\sin \alpha}{\cos \alpha} < \alpha$  ✓  
 $= \frac{2 \sin \alpha \cos \alpha}{\cos^2 \alpha - \sin^2 \alpha}$  ✓  
 $= \frac{2(\frac{1}{4}) \cdot (\frac{-\sqrt{15}}{4})}{(\frac{15}{16}) - (\frac{1}{16})}$  ✓  
 $= \frac{-\sqrt{15}}{8} \cdot \frac{8}{7}$   
 $= -\frac{\sqrt{15}}{7}$  ✓ (5)

8.2.1  $\frac{\cos \theta \tan \alpha}{-\sin \theta - \sin \theta}$   
 $= \frac{\cos \theta \cdot \sin \theta \cdot \frac{1}{\cos \theta}}{\cos \theta \cdot \sin \theta}$   
 $= \frac{1}{\cos \theta}$  (5)

8.2.2  $\theta = 30^\circ$  ✓

$\frac{1}{\cos 30^\circ} = \frac{\sqrt{2}}{\sqrt{3}} = \frac{\sqrt{3}}{3}$  (3)

8.3  $-\tan 60^\circ - \cos 24^\circ \cos 66^\circ$   
 $\sin 48^\circ$  ✓

$= \sqrt{3} \cos 24^\circ \cos 66^\circ$   
 $= \frac{2 \sin 24^\circ \cos 24^\circ}{\sqrt{2}}$  ✓  
 $= \frac{\sqrt{3}}{2} (\cos 66^\circ = \sin 24^\circ)$  (6)

Ques 9 | 15 |

9.1.1  $\sin(22^\circ + 12^\circ)$   
 $= \sin 22^\circ \cos 12^\circ + \cos 22^\circ \sin 12^\circ$

$= a + b$  ✓ (2)  
 9.1.2  $\cos(22^\circ - 12^\circ)$  ✓  
 $= \cos 22^\circ \cos 12^\circ + \sin 22^\circ \sin 12^\circ$   
 $= c + d$  ✓ (2)

9.2  $\frac{\sin \theta + \cos \theta}{\cos \theta \sin \theta}$   
 $= \frac{\sin^2 \theta + \cos^2 \theta}{\cos \theta \sin \theta}$  ✓  
 $= \frac{2}{\sin \theta \cos \theta}$  (4)

9.3.1

$\tan 4\theta (\tan 4\theta - 1) = 0$   
 $\tan 4\theta = 0$  or  $\tan 4\theta = 1$   
 $4\theta = k180^\circ$  or  $4\theta = 45^\circ + k180^\circ$   
 $\theta = k45^\circ$  or  $\theta = 11\frac{1}{4}^\circ + k45^\circ$   
 ReZ (4)

9.3.2  $\theta = -90^\circ, 90^\circ$  (1)  
 9.3.3  $\theta = -45^\circ, 0^\circ, 45^\circ$   
 $\theta = -78\frac{3}{4}^\circ, -33\frac{3}{4}^\circ, 11\frac{1}{4}^\circ, 56\frac{1}{4}^\circ$  (2)

Ques 10 | 11 |

10.1  $b = -\sqrt{45}, c = -\sqrt{2}$  (2)

10.2  $d = -14, 64^\circ$   
 $e = -0, 51^\circ$  (2)

10.3.1  $-180^\circ < \theta < -14, 64^\circ$

$165, 36^\circ < \theta < 180^\circ$  (2)

10.3.2  $-45^\circ < \theta < 0^\circ$  ✓  
 $135^\circ < \theta < 180^\circ$  ✓  
 $\theta = -180^\circ$  (3)

10.4  $y = \cos(\theta - 45^\circ + 60^\circ)$   
 $= \cos(\theta + 15^\circ)$  (2)

Ques 11 | 11 |

11.1  $\hat{A}\hat{O}\hat{B} = 15, 6^\circ$  (45 in A)  
 $AO = \frac{30 \sin 126, 4^\circ}{\sin 15, 6^\circ}$   
 $= 89, 79 \text{ m}$   
 $\sin 17^\circ = \frac{r}{89, 79}$  ✓  
 $r = 26, 25 \text{ m}$  (5)

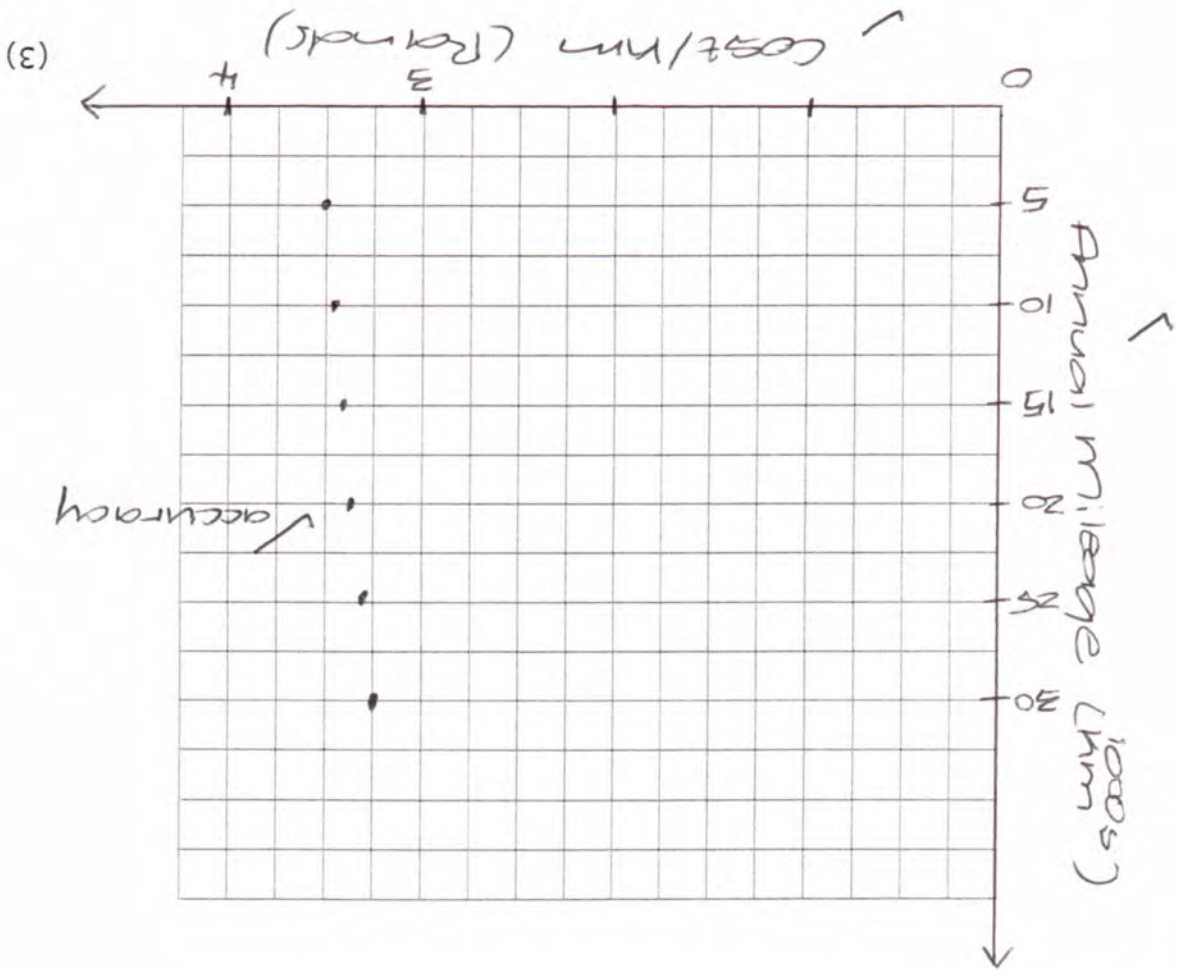
11.2  $S = 4\pi(26, 25)^2$   
 $= 8659, 01 \text{ m}^2$  (2)

11.3 Steel  
 $= \frac{1}{2}(8659, 01) + 2\pi(26, 25)19$   
 $= 7298, 31 \text{ m}^2$  (4)

2968, 31

QUESTION 2

2.1



QUESTION 3

3.1 Frequency table

Mark (X)	Number of Students
$0 \leq x < 20$	27
$20 \leq x < 40$	50 (172-22) 48
$40 \leq x < 60$	66 (139-72)
$60 \leq x < 80$	77 (192-139) (7)
$80 \leq x < 100$	18 (200-192)

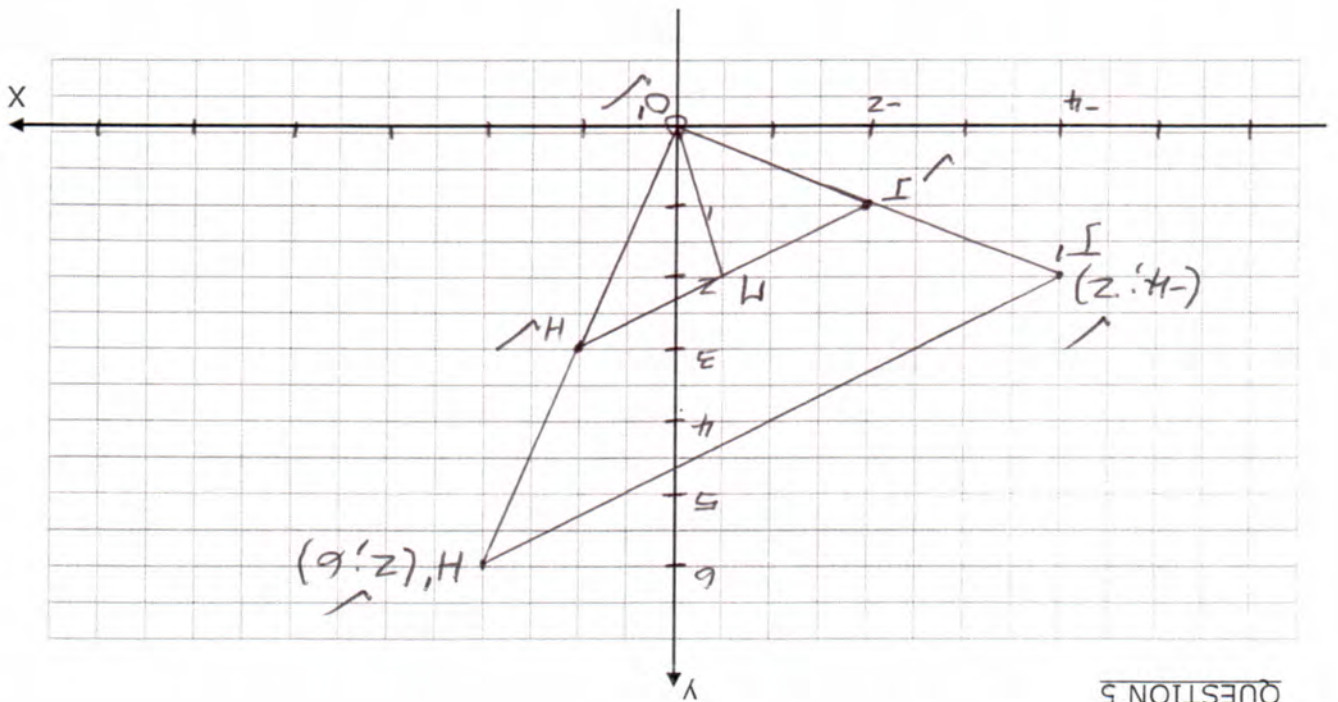
(4)

3.2 Pass mark =  $\frac{42}{100} = 42\%$

(1)

ANSWER SHEET

Name: \_\_\_\_\_



5. 5 OM:  $m = \frac{-1}{2} = -\frac{1}{2} \therefore y = -\frac{1}{2}x$  (5.2H)

5. 6 Enlargement (co-ords + length)

5. 7  $\frac{\text{Perimeter } \Delta HO}{\text{Perimeter } \Delta H'O} = \frac{\sqrt{5} + \sqrt{10} + \sqrt{13}}{\sqrt{20} + \sqrt{40} + \sqrt{52}}$   
 $= \frac{2(\sqrt{5} + \sqrt{10} + \sqrt{13})}{2(\sqrt{5} + \sqrt{10} + \sqrt{13})} = \frac{2}{2}$

5. 8  $\begin{pmatrix} -2 \\ -1 \\ 1 \end{pmatrix} \begin{pmatrix} 1 \\ -3 \\ 0 \end{pmatrix}$   $\begin{pmatrix} 0 \\ 0 \\ 0 \end{pmatrix}$

$y=0 \therefore x\text{-axis}$

(3)

(5)

(4)

(4)