

8.3 Mathematics Alt.B Paper 1 (122/1)

1. $\frac{-3 \cdot 6 + 2}{-44 \cdot 5 - 73} - \frac{-18 + 25}{1 + 3} =$

(3marks)

2. $1890 = 2 \times 3 \times 3 \times 3 \times 5 \times 7$
 $1008 = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 7$
 Common prime factors
 3, 5, 7

(2marks)

3. $0850h + 6h \ 30min = 1520h$
 $1520h + 1h \ 45min = 1705h$
 $1705h + 3h \ 15min = 2020h$
 $2020h + 35min = 2055h$
 Time of arrival in 12h system
 $2055 \div 12 = 8.55pm$

(3marks)

4. $(4.321 \times 10^{-4}) = 80.68 \times 10^{-6}$
 $= 0.08068$

(3marks)

5. $\pi r \times 45 = 25000$
 $r = \sqrt{\frac{25000}{\pi \times 45}}$
 $= 13.29807601$
 $= 13.3$

(3marks)

6. $3x < 2x + 3$
 $x < 3$
 $2x + 3 < 4x + 5$
 $-x < 1$
 $x > -1$
 Integral values: 0, 1, 2, 3.

(3marks)

7. $234 = 2 \times 3 \times 13$
 $270 = 2 \times 3^3 \times 5$
 $324 = 2 \times 3^4$
 •.HCF of 234, 270 & 324 = $2 \times 3 = 6$
 Number of pieces
 $\frac{234}{6} + \frac{270}{6} + \frac{324}{6} = 46$

(4marks)

8.

$$\frac{633}{582} \times \frac{69}{516} = \frac{93}{78}$$

$$\frac{51}{80} - \frac{56}{7} = \frac{7}{10}$$

(3marks)

9.

$$h^2 = 6.5 - 2.5$$

$$h = \sqrt{6.5 - 2.5}$$

$$= 6$$

$$= 6$$

Height of pole

$$= 6 + 0.9$$

$$= 6.9\text{m}$$

(3marks)

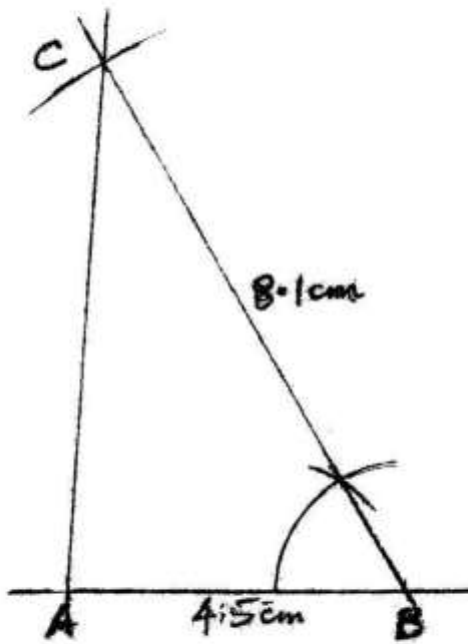
10.

No.	Log
2.5	0.3979,
0.064	$\bar{2}.8062$
8.1	$\bar{1}.2041$
	0.9085
	$\bar{2}.2956 - \frac{1}{2}$
0.1405	$\bar{i}.1478$

$$= 0.1405$$

(3marks)

11.



$$\angle CBA = 86 \pm 1^\circ$$

(3marks)

12. Linear scale factor - $\sqrt[3]{\frac{1}{25}}$

$$\text{Volume of smaller cylinder} = \left[\frac{1}{\sqrt[3]{25}} \right]^3 \times 800$$

$$\therefore \text{Volume of smaller cylinder} = \frac{1}{25} \times 800 = 32 \text{ cm}^3$$

(4marks)

13. $x + 8x - 384 = 0$
 $(x + 24)(x - 16) = 0$
 $x = -24$ or $x = 16$

(3marks)

14. Sum of angles of regular polygon
 $(2n - 4) \times 90 = 1620$
 $2n - 4 = 18$
 $n = 11$

(2marks)

15. $P = 3 + q$
 $3 + 0 - q = 21$
 $9 + 6q + q = 21$
 $q = 2$
 $p = 5$

(4marks)

$$16. \quad \text{Area of sector} = \frac{120^\circ}{360} \times 3 \times \pi$$

$$= 9.42$$

$$\text{Area of rhombus} = \frac{1}{2} \times 3 \times 2 \times \sin 120$$

$$= 7.79$$

$$\text{Area of shaded region} = 9.42 - 7.79$$

$$= 1.63$$

(4marks)

$$17. \quad (a) \quad 800000 - 500000 = 300000$$

$$48000 + \frac{?}{100} \times 300000 = 57000$$

$$(b) \quad 780000 - 48000 = 30000$$

$$30000 \times \frac{100}{3} + 500000 = 1500000$$

$$(c) \quad \frac{40}{100} \times \frac{3}{100} (2500000 - 500000) = 24000$$

$$24000 + 48000 = 72000$$

(10marks)

$$18. \quad (a) \quad (i) \quad \frac{y-5}{x-0} = 2$$

$$y = 2x + 5$$

(ii) Gradient of L

$$m = -1$$

$$2 \times m = -1$$

$$m = -\frac{1}{2}$$

Equation of L

$$\frac{y}{x+2.5} = -\frac{1}{2}$$

$$= -\frac{1}{2}x - \frac{5}{4}$$

(iii) Equation of L

$$\frac{y-2}{x-1} = -\frac{1}{2}$$

$$y = -\frac{1}{2}x + \frac{3}{2}$$

b) At intersection of L_1 and L_2 ,

$$2x + 5 = -\frac{1}{2}x + 2\frac{1}{2}$$

$$2x + \frac{1}{2}x = 2\frac{1}{2} - 5$$

$$x = -1$$

$$y = 2(-1) + 5 = 3$$

Coordinates of point of intersection = (-1,3)

(10marks)

9. a) Nehema's fraction:

$$1 - \left(\frac{1}{3}\right) = \frac{2}{3}$$

Amount Nehema got

$$\frac{4}{5} \times 750000 = 200000$$

b) Profit realized after taxation:

Before taxation

$$\frac{36}{100} \times 750000 = 270000$$

After taxation

$$\frac{95}{100} \times 270000 = 256500$$

c) Amount to be shared after each received 20000

$$= 256500 - 60000$$

$$= 196500$$

Ratio of sharing

$$\text{Amani: Furaha: Nehema} = \frac{1}{3} : \frac{2}{5} : \frac{4}{15}$$

$$= 5:6:4$$

Furaha's share more than Nehema's

$$6 > 4$$

(10marks)