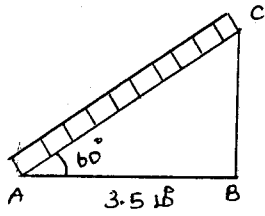


27)



$$\cos \theta = \frac{AB}{AC}$$

$$\cos 60^\circ = \frac{3.5}{AC}$$

$$\frac{1}{2} = \frac{3.5}{AC}$$

$$AC = 7m$$

28) $r_1 : r_2 = 3 : 2$ $h_1 : h_2 = 5 : 3$

$$c_1 : c_2 = 2\pi r_1 h_1 : 2\pi r_2 h_2$$

$$= 3 \times 5 : 2 \times 3$$

$$= 5 : 2$$

29) $L = 7.44$ $R = 2.26$ $S = ?$

$$R = L - S$$

$$2.26 = 7.44 - S$$

$$S = 7.44 - 2.26$$

$$S = 5.18$$

30) a) $S = \{HH, HT, TH, TT\}$

$$n(S) = 4$$

$$A = \{HT, TH, TT\}$$

$$n(A) = 3$$

$$P(A) = \frac{n(A)}{n(S)} = \frac{3}{4}$$

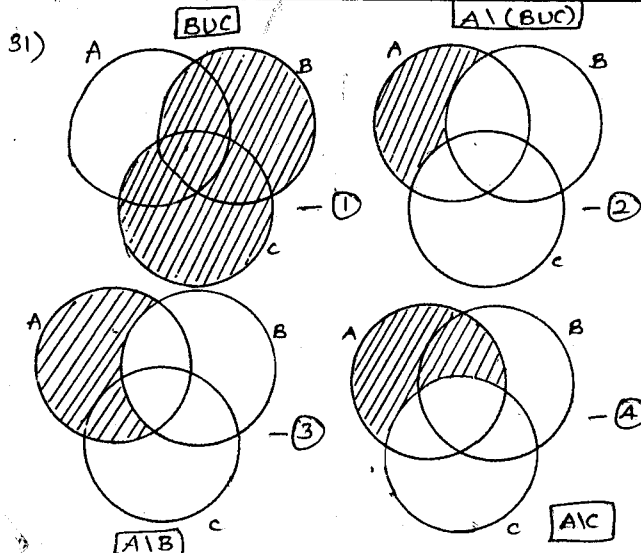
b) $2\pi r = 236$ $\lambda = 12$

$$\pi r = 118$$

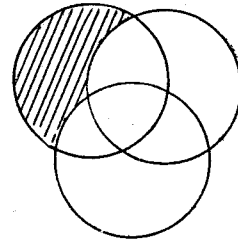
$$\text{அகலம்} = \pi r \lambda$$

$$= 118 \times 12$$

$$= 1416 \text{ மீ}^2$$



$$(A \cap B) \cap (A \cap C)$$



- ⑤

② மற்றும் ⑤ வீதத்தில்

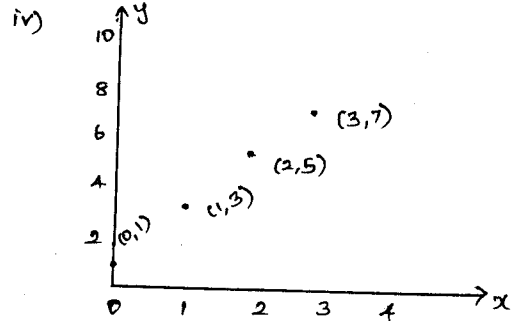
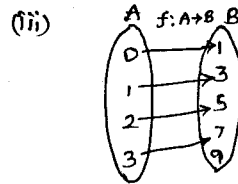
$$A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$$

32) $f(0) = 1$ $f(1) = 3$ $f(2) = 5$ $f(3) = 7$

(i) $f = \{(0, 1), (1, 3), (2, 5), (3, 7)\}$

(ii)

x	0	1	2	3
$f(x)$	1	3	5	7



33) $6 + 66 + 666 + \dots$ n 2-அகலம்

$$= 6(1 + 11 + 111 + \dots)$$
 n 2-அகலம்

$$= \frac{6}{9}(9 + 99 + 999 + \dots)$$
 n 2-அகலம்

$$= \frac{2}{3} [(10-1) + (100-1) + (1000-1) + \dots]$$
 n 2-அகலம்

$$= \frac{2}{3} [(10 + 100 + 1000 + \dots) - (1 + 1 + 1 + \dots)]$$
 n 2-அகலம்

$$10 + 100 + 1000 + \dots$$
 n 2-அகலம்

$$a = 10$$

$$r = 10 > 1$$

$$S_n = \frac{a(r^n - 1)}{r - 1}$$

$$S_n = \frac{10(10^n - 1)}{9}$$

$$\therefore = \frac{2}{3} \left[\frac{10(10^n - 1)}{9} - n \right]$$

$$= \frac{20}{27} (10^n - 1) - \frac{2n}{3}$$

$$1 + 1 + 1 + \dots$$
 n 2-அகலம்

$$a = 1$$

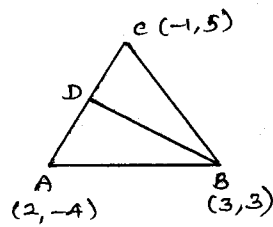
$$r = 1$$

$$S_n = nA$$

$$S_n = n$$

34) $12^2 + 13^2 + \dots + 23^2$
 $C = (1^2 + 2^2 + \dots + 23^2) - (1^2 + 2^2 + \dots + 11^2)$
 $1^2 + 2^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$
 $= \frac{23 \times 24 \times 47}{6} - \frac{11 \times 12 \times 23}{6}$
 $= 4324 - 506$
 $= 3818$

38)



AC ன் சாய்வு $= \frac{y_2 - y_1}{x_2 - x_1} = \frac{5 + 4}{-1 - 2} = \frac{9}{-3} = -3$
 $= -3$

BD ன் சாய்வு $= \frac{-1}{m} = \frac{-1}{-3} = \frac{1}{3}$

BD ன் சமன்பாடு:

$y - y_1 = m(x - x_1)$

$y - 3 = \frac{1}{3}(x - 3)$

$3y - 9 = x - 3$

$x - 3y + 6 = 0$

35)

$\frac{1}{x-b} + \frac{1}{x} = \frac{1}{4}$

$\frac{x + x - b}{x(x-b)} = \frac{1}{4}$

$\frac{2x - b}{x^2 - bx} = \frac{1}{4}$

$x^2 - bx = 8x - 24$

$x^2 - 14x + 24 = 0$

$(x-12)(x-2) = 0$

$\therefore x = 12$

39)

$\frac{1}{2} \begin{bmatrix} 6 & 7 & 4 & 3 & 6 \\ 9 & 4 & 2 & 7 & 9 \end{bmatrix}$

$= \frac{1}{2} [(24 + 14 + 28 + 27) - (63 + 16 + 6 + 42)]$

$= \frac{1}{2} [93 - 127] = \frac{1}{2} [-34]$

$= 17$ க். சாய்வு

36)

	$3x^2 + 2x + 4$
$3x^2$	$\frac{9x^4 + 12x^3 + 28x^2 - nx + m}{9x^4}$
$6x^2 + 2x$	$\frac{12x^3 + 28x^2}{12x^3 + 4x^2}$
$6x^2 + 4x + 4$	$\frac{24x^2 - nx + m}{24x^2 + 16x + 16}$
	$\underline{\quad 0 \quad}$

$-n = 16$

$m = 16$

$n = -16$

37) $AB = \begin{pmatrix} 5 & 2 \\ 7 & 3 \end{pmatrix} \begin{pmatrix} 2 & -1 \\ -1 & 1 \end{pmatrix}$

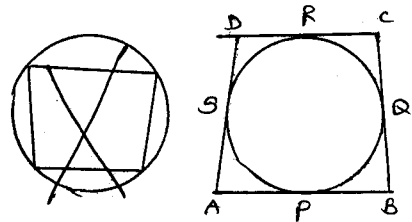
$= \begin{pmatrix} 8 & -3 \\ 11 & -4 \end{pmatrix}$

$(AB)^T = \begin{pmatrix} 8 & 11 \\ -3 & -4 \end{pmatrix}$

$B^T A^T = \begin{pmatrix} 2 & -1 \\ -1 & 1 \end{pmatrix} \begin{pmatrix} 5 & 7 \\ 2 & 3 \end{pmatrix}$

$= \begin{pmatrix} 8 & 11 \\ -3 & -4 \end{pmatrix}$

40)



$AP = AS \quad BP = BQ \quad CR = CQ \quad DR = DS$

$AP + BP + CR + DR = AS + BQ + CQ + DS$

$= AS + DS + BQ + CQ$

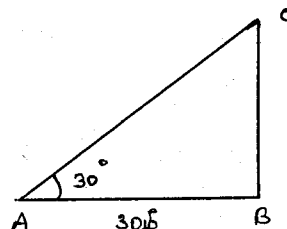
$AB + CD = AD + BC$

$AB + CD - BC = AD$

$6 + 7 - 6.5 = AD$

$AD = 6.5$ செ.மீ

41)



$$\tan 30^\circ = \frac{BC}{AB}$$

$$\frac{1}{\sqrt{3}} = \frac{BC}{30}$$

$$BC = \frac{30}{\sqrt{3}} = \frac{3 \times 10}{\sqrt{3}}$$

$$BC = 10\sqrt{3} \text{ m}$$

$$\cos 30^\circ = \frac{AB}{AC}$$

$$\frac{\sqrt{3}}{2} = \frac{30}{AC}$$

$$AC = 20\sqrt{3} \text{ m}$$

$$\text{Sum} = 10\sqrt{3} + 20\sqrt{3}$$

$$= 30\sqrt{3} \text{ m}$$

42) $R = 15$ cm $r = 8$ cm $h = 63$ cm

$$V = \frac{1}{3} \pi h (R^2 + r^2 + Rr)$$

$$= \frac{1}{3} \times \frac{22}{7} \times 63 (225 + 64 + 120)$$

$$= 66 \times 409 = 26994 \text{ cm}^3$$

$$= \frac{26994}{1000} \quad (1000 \text{ cm}^3 = 1 \text{ l})$$

$$= 26.994 \text{ l}$$

43)

x	f	d	fd	fd ²
3	7	-10	-70	700
8	10	-5	-50	250
13	15	0	0	0
18	10	5	50	250
23	8	10	80	800
	50		10	2000

$$\sigma = \sqrt{\frac{\sum fd^2}{\sum f} - \left(\frac{\sum fd}{\sum f}\right)^2}$$

$$= \sqrt{\frac{2000}{50} - \left(\frac{10}{50}\right)^2}$$

$$= \sqrt{40 - \frac{1}{25}} = \sqrt{\frac{999}{25}}$$

$$= \sqrt{39.96}$$

$$\sigma = 6.3$$

44)

$$P(A \cup B \cup C) = P(A) + P(B) + P(C) - P(A \cap B) - P(B \cap C) - P(C \cap A) + P(A \cap B \cap C)$$

$$= \frac{4}{5} + \frac{2}{3} + \frac{3}{7} - \frac{8}{15} - \frac{2}{7} - \frac{12}{35} + \frac{8}{35}$$

$$= \frac{4}{5} + \frac{2}{3} + \frac{1}{7} - \frac{8}{15} - \frac{4}{35}$$

$$= \frac{84 + 70 + 15 - 56 - 12}{105}$$

$$= \frac{169 - 68}{105} = \frac{101}{105}$$

45) a) കൂലി

$$d = 8 \text{ cm}$$

$$r_1 = 4 \text{ cm} = 40 \text{ m}^2$$

$$R = 12 \text{ cm} = 120 \text{ m}^2$$

ഭരണം

$$r_2 = 4 \text{ m}^2$$

$$\text{കൂലിക്കിടം} = \frac{\text{കൂ.ക.}}{\text{ഭര.ക.}}$$

$$= \frac{\frac{1}{3} \pi r^2 h}{\frac{4}{3} \pi r^3}$$

$$= \frac{\frac{1}{3} \times \pi \times 40 \times 40 \times 40}{\frac{4}{3} \times \pi \times 4 \times 4 \times 4}$$

$$= 750$$

b)

$$1 - 2 - 5 + b = 0$$

$\therefore x-1$ ഒരു ഘടകമാണ്

$$\begin{array}{r|rrrr} 1 & 1 & -2 & -5 & b \\ & 0 & 1 & -1 & -b \\ \hline & 1 & -1 & -6 & 0 \end{array}$$

$$x^2 - x - 6 = (x+2)(x-3)$$

$$\therefore (x-1)(x+2)(x-3)$$

46) a) ചിലവുകൾ

b) ഉപയോഗിച്ച തുക = 6.3 രൂപ

47) a) $f = 2.5, 2\frac{1}{2}$

b) $xy = 288$

$x = 12, y = 24$