

2020 අවසාන වාර පරීක්ෂණය  
11 ශ්‍රේණිය ගණිතය - පිළිතුරු පත්‍රය  
ii පත්‍රය

(01)

$$\begin{aligned} \text{ණය මුදල} &= 85000 - 13000 \\ &= 72000 \quad \text{———— (ල 01)} \end{aligned}$$

මධ්‍යම ගෙවන

$$\begin{aligned} \text{ණය මුදලේ කොටස} &= \frac{72000}{24} \\ &= 3000 \quad \text{———— (ල 01)} \end{aligned}$$

මර්ක වෘත්තයේ ගෙවන

$$\begin{aligned} \text{මුළු මුදල} &= 3562.50 \times 24 \\ &= 85500.00 \quad \text{———— (ල 01)} \end{aligned}$$

ගෙවූ මුළු ණය

$$\begin{aligned} &= 85500 \\ &\quad - 72000 \\ &= 13500.00 \quad \text{———— (ල 01)} \end{aligned}$$

මාස ඒකක ගණන

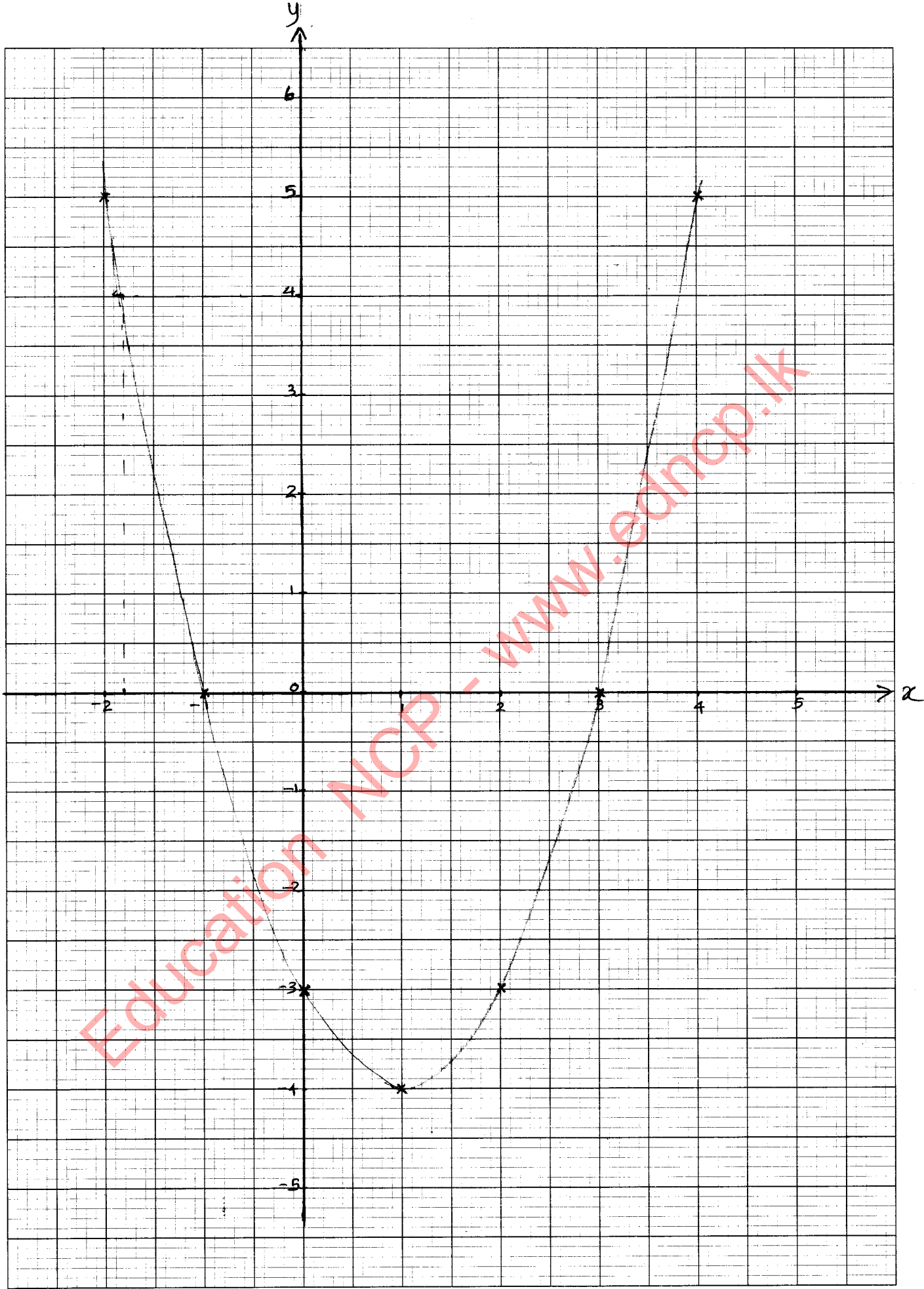
$$\begin{aligned} &= \frac{24}{2} (24 + 1) \quad \text{———— (ල 01)} \\ &= 300 \quad \text{———— (ල 01)} \end{aligned}$$

මාස ඒකකයට ණය

$$\begin{aligned} &= \frac{13500}{300} \\ &= 45 \quad \text{———— (ල 01)} \end{aligned}$$

මර්ජන වෙළුම් දැනුවත්කම

$$\begin{aligned} &= \frac{45}{3000} \times 100\% \times 12 \quad \text{———— (ල 02)} \\ &= 18\% \quad \text{———— (ල 01)} \end{aligned}$$



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Name :-..... Index No :-.....  
 Subject :-..... Grade :-.....  
 School :-.....



(02)

(i)  $x = 1$  ආශ්‍රිතව

$$y = (x-3)(x+1)$$

$$= (1-3)(1+1)$$

$$= -2 \times 2$$

$$= -4 \quad \text{—————} \quad (\text{01})$$

(ii) ✓

(iii)  $x = -1$

$x = +3$

} ————— (02)

(iv)  $-1.8 \leq x \leq 0$  ————— (02) ( $\pm 0.1$ )

(v)  $y = (x-1)^2 - 4$  ————— (02)

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(03) විෂ්කම්භ දිග =  $3x+6$  \_\_\_\_\_ (෧෦)

පළල =  $x+10$  \_\_\_\_\_ (෧෦)

$\{(3x+6)(x+10) - x^2\} \times 50 = 5000$  \_\_\_\_\_ (෧෦)

$3x^2+30x+6x+60-x^2 = 100$

$2x^2+36x-40 = 0$  \_\_\_\_\_ (෧෦)

$x^2+18x-20 = 0$

$x^2+18x = 20$

$x^2+18x+9^2 = 20+81$  \_\_\_\_\_ (෧෦)

$(x+9)^2 = 101$  \_\_\_\_\_ (෧෦)

$x+9 = \pm\sqrt{101}$

$x+9 = \pm 10.05$

$x = +10.05 - 9$  හෝ  $x = -10.05 - 9$

$x = 1.05$  හෝ  $x = -19.05$

දිගේ ධන අගය විය යුතුය. \_\_\_\_\_ (෧෦)

$x = 1.05 \text{ m}$  \_\_\_\_\_ (෧෦)

විෂ්කම්භ දිග =  $3 \times 1.05 + 6$  \_\_\_\_\_ (෧෦)

=  $9.15$

=  $9 \text{ m}$  \_\_\_\_\_ (෧෦)

ද්විතීයික සමීකරණ සඳහා භාවිත කරන සූත්‍රය

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$  \_\_\_\_\_ (෧෦)

$x = \frac{-18 \pm \sqrt{18^2 - 4 \times 1 \times -20}}{2 \times 1}$  \_\_\_\_\_ (෧෦)

=  $\frac{-18 \pm \sqrt{324 + 80}}{2}$

=  $\frac{-18 \pm \sqrt{404}}{2}$  \_\_\_\_\_ (෧෦)

=  $\frac{-18 \pm 2\sqrt{101}}{2}$  \_\_\_\_\_ (෧෦)

ඉලක්කම් \_\_\_\_\_ (෧෦)

(04)

(i) (a)  $2x + y = 700$  ——— (1) ——— (201)

$5x = 3y + 100$

$5x - 3y = 100$  ——— (2) ——— (201)

(1)  $\times 3$   $6x + 3y = 2100$  ——— (3) ——— (201)

(2) + (3)  $11x = 2200$   
 $x = 200$  ——— (201)

$2x + y = 700$

$400 + y = 700$  ——— (201)

$y = 300$  ——— (201)

(ii)  $\left. \begin{array}{l} \text{කළු ලහ හි 200} \\ \text{කළු ලහ හි 300} \end{array} \right\}$  ——— (201)

(iii) කුණාටු වල =  $5 \times 200$   
= 1000

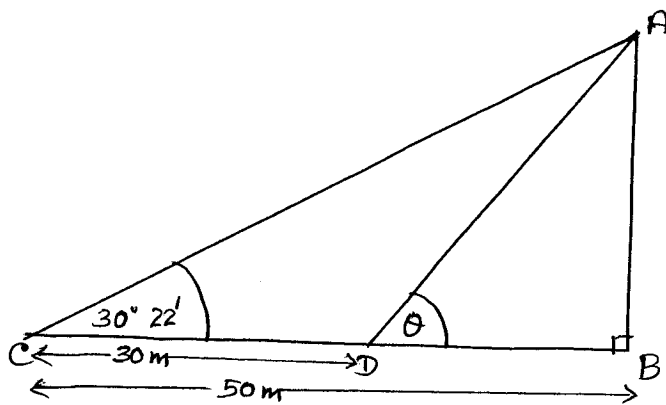
$3000 + 4m \leq 8000$  ——— (201)

$4m \leq 5000$

$m \leq 1250$  ——— (201)

කුණාටු උපරිම වල හි 1250 ——— (201)

(05)



- (i)  $30^{\circ} 22'$  \_\_\_\_\_ (201)  
50 m \_\_\_\_\_ (201)  
30 m \_\_\_\_\_ (201)

(ii)  $\tan 30^{\circ} 22' = \frac{AB}{50}$  \_\_\_\_\_ (201)

$0.5859 = \frac{AB}{50}$  \_\_\_\_\_ (201)

$AB = 29.295$  \_\_\_\_\_ (201)

අවසන් පලමු දශමයෙන්  $AB = 29.3 \text{ m}$ . \_\_\_\_\_ (201)

(iii)

$\tan \hat{A}DB = \frac{AB}{20}$  \_\_\_\_\_ (201)

$= \frac{29.3}{20}$

$\tan \hat{A}DB = 1.4650$  \_\_\_\_\_ (201)

$\hat{A}DB = 55^{\circ} 41'$

D හි A ට දෘෂ්ටිකෝණය  $= 55^{\circ} 41'$  \_\_\_\_\_ (201)

(06)

අදායම් රු. කේ.	මධ්‍ය අගය	අපගමනය d	අංක සංඛ්‍යාව f	f d
100 - 200	150	-300	7	-2100
200 - 300	250	-200	6	-1200
300 - 400	350	-100	8	-800
400 - 500	450	0	11	0
500 - 600	550	+100	4	+400
600 - 700	650	+200	9	+1800
700 - 800	750	+300	5	+1500
			50	-400

(i) මධ්‍යගතය =  $A + \frac{\sum fd}{\sum f}$  මධ්‍ය අගය නිර්ණය (201)

=  $450 - \frac{400}{50}$  (201) f d සමස්ත f d (201)

=  $450 - 8$   $\sum fd$  (201)

සෛද්ධ මධ්‍යගත අදායම = 442 (201)

(ii) මෘදුක අදායම =  $442 \times 30$

= රු. කේ. 13260 (201)

(iii)  $13260 \times \frac{60}{100}$  (201)

= 7956 (201)

=  $7956 \times 180$

= 1432080 (201)

$1432080 > 1430000$  නිසා (201)

මෘදුක අදායම 1430000 ඉක්මවයි.

(07)

(i)  $a = 7$

$$a + 2d = 13$$

$$2d = 6$$

$$d = 3$$

\_\_\_\_\_ (201)

(ii)  $T_n = a + (n-1)d$

\_\_\_\_\_ (201)

$$64 = 7 + (n-1) \times 3$$

\_\_\_\_\_ (201)

$$64 = 7 + 3n - 3$$

$$60 = 3n$$

$$n = 20$$

\_\_\_\_\_ (201)

(iii)  $S_n = \frac{n}{2}(a+l)$

\_\_\_\_\_ (201)

$$= \frac{20}{2}(7+64)$$

$$= 10 \times 71$$

$$= 710$$

\_\_\_\_\_ (201)

එදා  $= 710 \times 25$

$$= 17750$$

\_\_\_\_\_ (201)

(b)

$$T_n = ar^{n-1}$$

\_\_\_\_\_ (201)

$$8 = \frac{1}{8} \times 2^{n-1}$$

$$64 = 2^{n-1}$$

$$2^6 = 2^{n-1}$$

\_\_\_\_\_ (201)

$$n-1 = 6$$

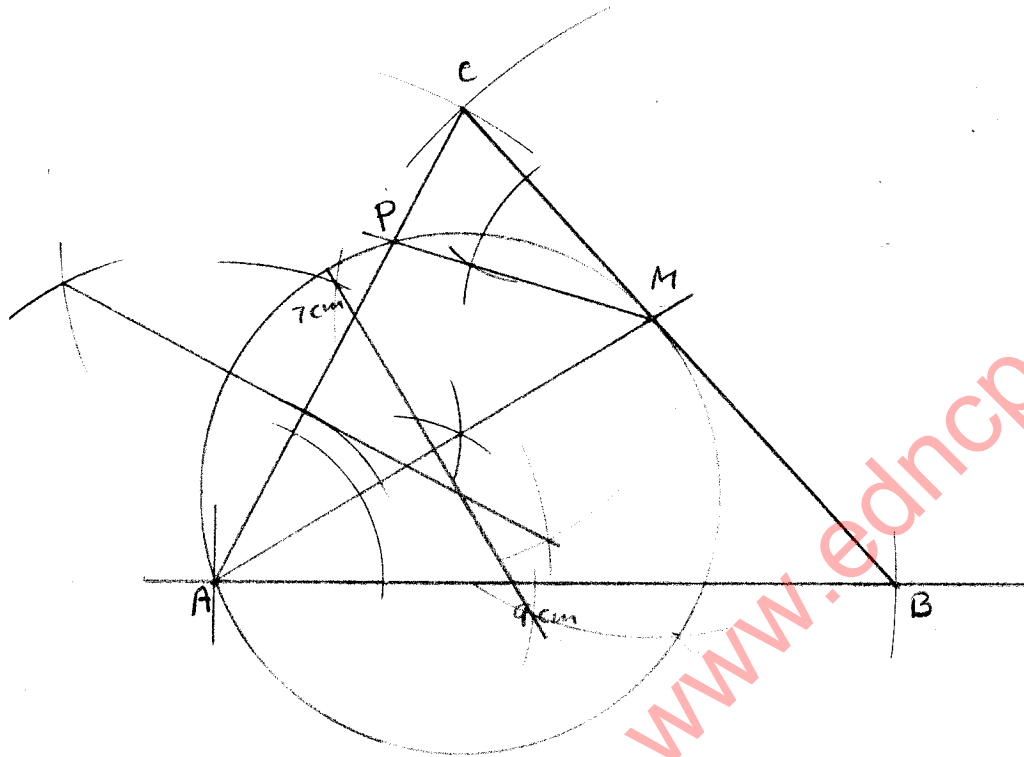
$$n = 7$$

\_\_\_\_\_ (201)

එදා 8 වේ.



(08)



(i) - @ 03

(ii) @ 01

(iii) @ 02

(iv) @ 02

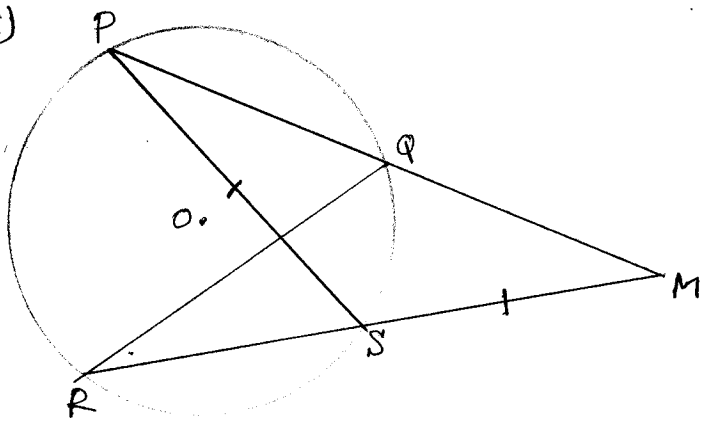
(v)  $\angle MP = \angle MA P$ . (කර්ණයන්)

එකම වෘත්තයකින් කේන්ද්‍ර සමාන වෘත්තයක්

Be වෘත්තයක් වේ.

(@ 02)

(09)



b2pwo (02)

മ.ക.ഗ :-  $2\hat{QRS} + \hat{PSM} = 180^\circ$  മെ.

മാനഗ :-  $\hat{SPM} = \hat{SMP}$  (ചെട്ടിപ്പുള കൃക്കരഗ തൃക്കേ) — (02)

$\hat{SPM} + \hat{SMP} + \hat{PSM} = 180$  (കൃക്കരഗക ദുഗമകതര കരഗ) (02)

$\hat{SPM} = \hat{QRS}$  (സകര കരഗമര കരഗ) (02)

$\hat{SPM} = \hat{QRS} = \hat{SMP}$  (തൃക്കേ) (01)

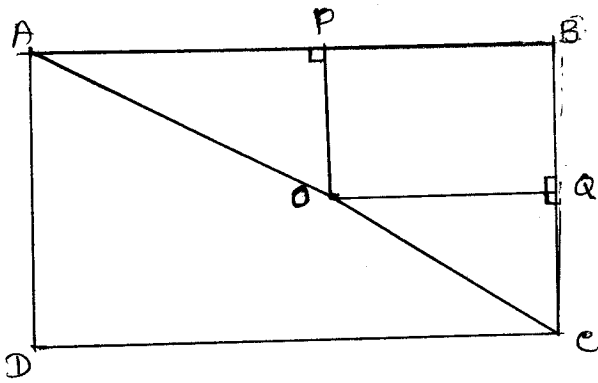
$\hat{SPM} + \hat{SMP} + \hat{PSM} = 180$	} (01)
$\hat{QRS} + \hat{QRS} + \hat{PSM} = 180$	

$$\underline{2\hat{QRS} + \hat{PSM} = 180^\circ}$$

നെ നെന കരഗമിട്ടു കൃക്കകര കരഗ മെന.

(10) (a)

(i)



හැරහම — (202)

(ii)  $AO^2 + OC^2 = AP^2 + PB^2 + BQ^2 + QC^2$  බව

$$\left. \begin{aligned} AO^2 &= AP^2 + OP^2 \\ OC^2 &= OQ^2 + QC^2 \end{aligned} \right\} \text{ — (201)}$$

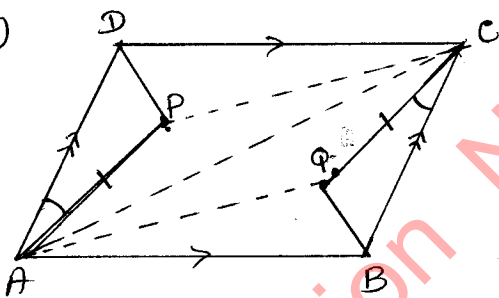
$$AO^2 + OC^2 = AP^2 + OP^2 + OQ^2 + QC^2$$

$OP = BQ$  ද

$OQ = PB$  ද බව

$AO^2 + OC^2 = AP^2 + PB^2 + BQ^2 + QC^2$  බව. — (201)

(b)



(i)  $AP = QC$  (දී ඇත.)

$\angle DAP = \angle CQB$  (දී ඇත)

$AD = BC$  (සමාන්තරයන්ගේ සම්පූර්ණ පාර)

$\triangle ADP \cong \triangle BQC$  (ප.කෙ.ප. දෘෂ්‍යවීම)

} — (201)

— (201)

— (201)

(ii)  $\angle DAC = \angle ACB$  (සමාන්තර කෝණ) — (201)

$\angle DAC - \angle DAP = \angle ACB - \angle CQB$  (ඉතාමත්)

$\angle PAE = \angle ACQ$

————— (201)

$\therefore AP \parallel QC$

$AP = QC$

} — (201)

$\therefore APCQ$  සමාන්තරයකි බව. (සම්පූර්ණ පාර සමාන හා සමාන්තර වීම)

(11)

$$\frac{1}{3} \pi r^2 h = 12 \times 12 \times 6 \quad \text{————— (e 02)}$$

$$\frac{1}{3} \times \pi r^2 \times 12 = 12 \times 12 \times 6 \quad \text{————— (e 01)}$$

$$\pi r^2 = 12 \times 3 \times 6$$

$$r^2 = \frac{216}{\pi}$$

$$r = \sqrt{\frac{36 \times 6}{\pi}} \quad \text{————— (e 01)}$$

$$r = 6 \sqrt{\frac{6}{\pi}}$$

$$\lg r = \lg 6 + \frac{1}{2} \lg 6 - \frac{1}{2} \lg 3.14 \quad \text{————— (e 01)}$$

$$= 0.7782 + \frac{1}{2} \times 0.7782 - \frac{1}{2} \times 0.4969 \quad \text{————— (e 01)}$$

$$= 0.7782 + 0.3891 - 0.2484 \quad \text{————— (e 01)}$$

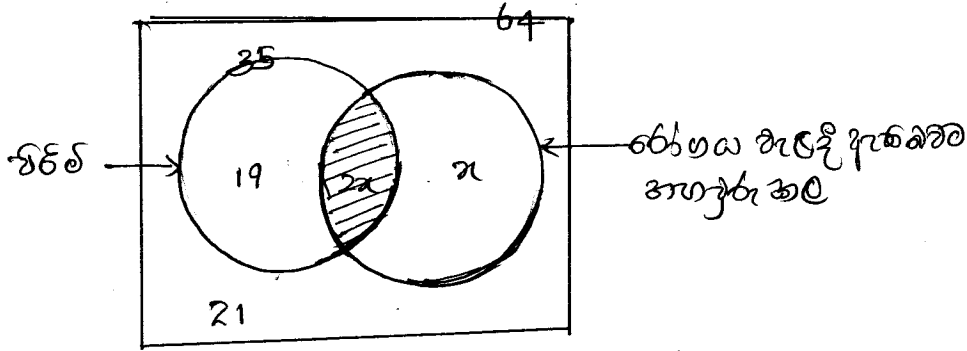
$$\lg r = 0.9189 \quad \text{————— (e 01)}$$

$$r = \text{antilog } 0.9189$$

$$r = 8.296 \quad \text{————— (e 01)}$$

$$\text{അതുകൊണ്ട് } r = 8 \text{ cm.} \quad \text{————— (e 01)}$$

(12)

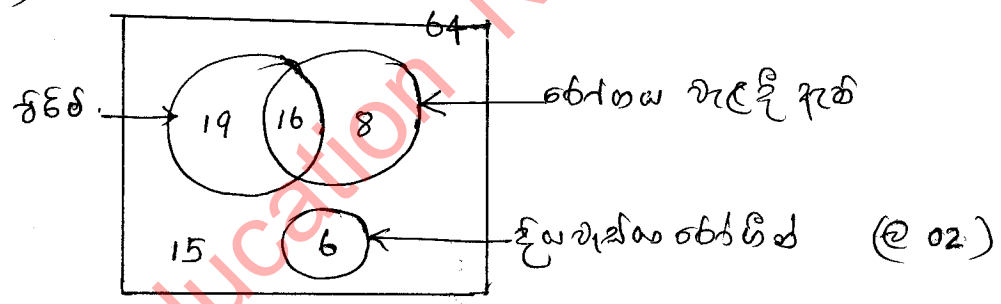


- (i) ඉපයාම වැළඳූ කොටස (එ 1)  
35 — (එ 1)  
21 — (එ 1)

(ii) ද්‍රව්‍ය කිරීම — (එ 02)

(iii)  $35 + 21 = 56$   
 $64 - 56 = 8$   
 $x = 8$   
 $35 - 16 = \underline{19} \text{ — (එ 02)}$

(iv)



(v)  $\frac{34}{64}$  — (එ 01)