1. a) $p = -3$

   b) $f(1) = \dfrac{1}{2}$

   ① Tak Faham maksud f_A tak tertakrif.

2. $2x^2 \leq 1 + x$

   $2x^2 - x - 1 \leq 0$ ✓₁

   $(2x+1)(x-1) \leq 0$ ✓₁

   ⑤ Tak mahir pemfaktoran.

   The range is $-\dfrac{1}{2} \leq x \leq 1$ ✓₃

   ① Tak kuasai asas peny. ketaksamaan kuadratik
   $\Rightarrow ax^2 + bx + c \leq 0$

   ② Menukar ketaksamaan kpd persamaan.

   ③ Kesilapan ketaksamaan

   ④ Salah kaedah. Murid guna $b^2 - 4ac$ utk cari ketaksamaan bg nilai₂ x.
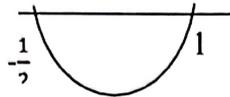
3. $v = 6t - t^2$

   $6t - t^2 > 5$ ✓₁

   $t^2 - 6t + 5 < 0$

   $(t-1)(t-5) < 0$ ✓₂

   $1 < t < 5$ ✓₃

   ① Tak faham maksud halaju lebih dari 5

   ② Guna $b^2 - 4ac$ utk cari julat p/u.
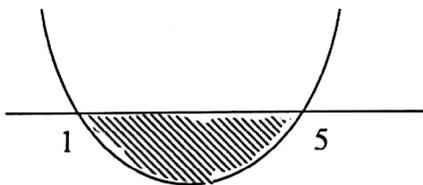
4. a) $27^{-\log_3 y} = 64$

   $3^{\log_3 y^{-3}} = 4^3$ ✓₁

   $y^{-3} = 4^3$

   $y = \dfrac{1}{4}$ ✓₂

   ① Salah rumus indeks / log

   ② Murid tak tahu menukar log ke indeks

   ③ Tak dpt bezakan asas log dan argumen log.
   $\log_{125}$ dikira $\log_{10} 125$

   b) $\log_{125} - [\log_3(5x-7)] = \dfrac{1}{3}$

   $\log_3(5x-7) = 125^{\frac{1}{3}}$ ✓₁

   $5x - 7 = 3^5$

   $x = 50$ ✓₂

5. $S_{6-18} = S_{18} - S_5$ ✓₁

$$= \frac{9(18) - 3(18)^2}{2} \;{\large✓}_2 - \frac{9(5) - 3(5)^2}{2} \quad {\large✓}_3$$

// $= -390$ ✓₄

① Cuai 18 ditulis 8

② Menulau rumus S_5 diberi dlm soalan.
cthi $S_n = \dfrac{9n - 3n^2}{2}$ dikau $S_n = \dfrac{n}{2}[2a + (a-1)d]$ lapd

③ $S_{6 \to 18} = S_{18} - S_6$ sepahtx $S_{6 \to 18} = S_{18} - S_5$

6.
$$r = \frac{18}{6} = 3 \;✓$$
$$k = 6(3)^{4-1}$$
$$= 162$$

① Salah rumus jujuy.

② Cuai $\dfrac{18}{6} = 2$

---

7. $a = 4, \quad d = 16 - 4 = 12$

$S_n = 580$

$$\frac{n}{2}[2(4) + (n-1)12] = 580 \;{\large✓}_1$$
$$12n^2 - 4n - 1160 = 0$$
$$3n^2 - n - 290 = 0$$
$$(3n + 29)(n - 10) = 0 \;{\large✓}_2$$
$$n = 10 \;{\large✓}_3$$

① Salah faham soalan // gagal Membezakan T_n dan S_n

② Tak dpt bezakan soalan jujuy dan soalan pilihatu / gebuyan

8.

a)
$$p = 100 - \frac{1}{4}x$$
$$x = 400 - 4p$$
$$c = \frac{\sqrt{400 - 4p}}{25} + 600.$$
$$c = \frac{2\sqrt{100 - p}}{25} + 600$$

b)
$$c = \frac{2\sqrt{100 - (36)}}{25} + 600$$
$$= 600.64$$

Tak dapat keitkan soalan dgn fungsi gubahan.

---

9. $x = 3$

Isipadu cat $=$ $100(3x) \times 100(5-x) \times 0.3$
Pd bill board

$$= 9000(5x - x^2) \text{ cm}^3$$

Isipadu cat digunakan $= 20(\pi r^2 h) - 20(0.6(2))$

$$= 54000 \text{ cm}^3$$

① either one.

$$9000(5x - x^2) = 54000 \;✓$$
$$x^2 - 5x + 6 = 0$$
$$(x - 2)(x - 3) = 0 \;{\large✓}_1$$

$x = 2$ cm @ $x = 3$ cm. ✓①

10.

$$3 = 5^{\frac{q}{p}}, (3.5)^r = 5^q$$

////

$$(5^{\frac{q}{p}} \cdot 5)^r = 5^q$$

$$\left(\frac{q}{p} + 1\right)r = q$$

$$\left(\frac{q+p}{p}\right)r = q$$

$$r = \frac{pq}{q+p}$$

11. a) $m = \frac{6-0}{0-12}, -\frac{1}{2}$, ✓①

$$xy = -\frac{1}{2}(x) + 6$$

$$y = -\frac{1}{2} + \frac{6}{x}$$ ✓②

b) $-\frac{1}{2} = \frac{6-k}{0-9}$

$$k = \frac{1}{6}$$ ✓①

① Murid tak dapat membaca koordinat pd dinding menegak atau (0,6)

soalan ada kesilapan

12.
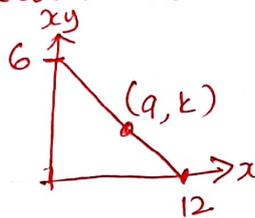
Perlu semak skema

a) $\frac{120°}{180°} \times 3.142 = 2.095 \ rad$ ✓①

b) Area two segments $= 2[\frac{1}{2}r^2(\theta - \sin\theta)]$

$$= 2[\frac{1}{2}(6)^2(2.095 - \sin 120°)]$$ ✓①

$$= 2[18(1.229)]$$

$$= 44.24 \ cm^2$$

Area of one circle $= \frac{1}{2}r^2\theta$

① Tak dpt tentu sudut sektor

$$= \frac{1}{2}(6)^2(\frac{360°}{180°} \times 3.142)$$

$$= 113.112 \ cm^2$$

Luas Kawasan berlorek (satu bulatan) $= 113.112 - 44.24$ ✓②

$$= 68.872$$

$$LKB = 2(68.872)$$

$$= 137.74 \ cm^2 @$$

$$137.75 \ cm^2$$ ✓③

13.

////
////

$$6x + 2y = 18$$
$$-6x + 2y = 18$$
$$6x - 2y = 18$$
$$-6x - 2y = 18$$
✓②

① pelajar tak dapat kaitkan psm dari bth nilai mutlak.

$$Luas = \frac{1}{2}\begin{vmatrix} 0 & -3 & 0 & 3 & 0 \\ 9 & 0 & -9 & 0 & 9 \end{vmatrix}$$

$$= \frac{1}{2}|(27+27)-(-27-27)|$$ ✓③

$$= \frac{1}{2}|108|$$

$$= 54 \ unit^2$$ ✓④

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SULIT

(a)
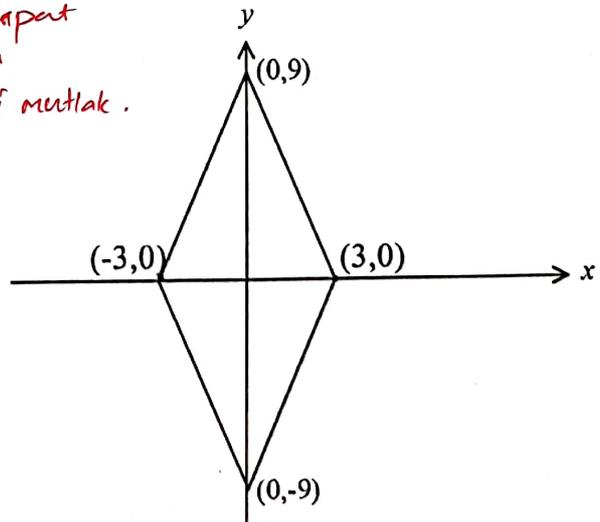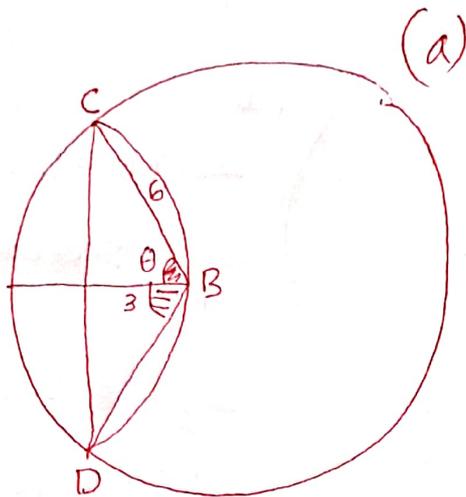
$\cos \theta = \frac{3}{6} = \frac{1}{2}$

$\theta = 60°$

$\angle CBD = 2 \times 60°$

$= 120°$

$= \frac{120}{180} \times \pi$

$= \frac{2}{3} \pi$ rad.

$= 2.0947$ rad. #
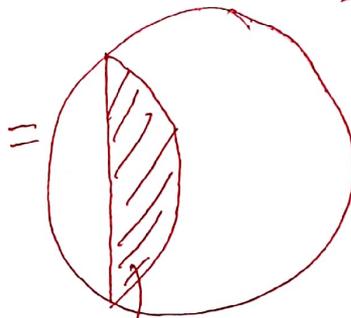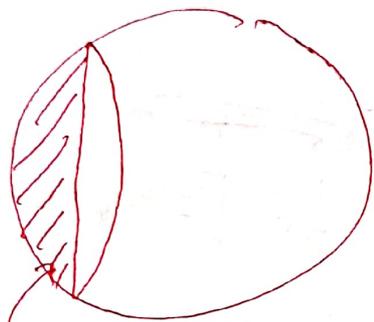
luas
Tembereng
minor

(b)

$= \frac{1}{2} r^2 (\theta - \sin \theta)$

$= \frac{1}{2} (6)^2 (2.0947 - \sin 2.0947)$

$= 22.1189$ cm².

$2(22.1189)$

=

LKB
bg satu
bulatan
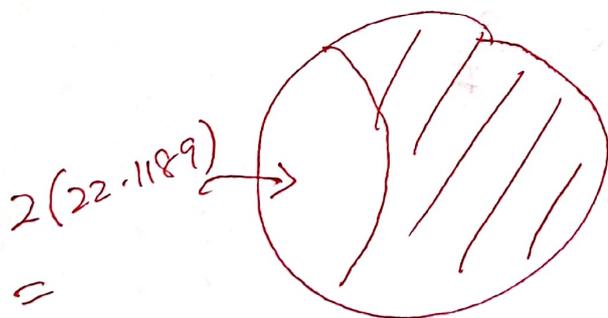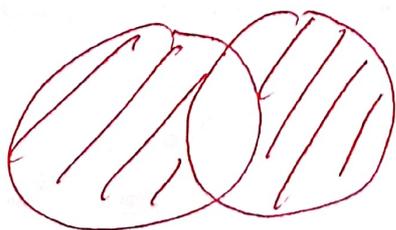
$= \pi r^2 - 2(22.1189)$

$= 68.8742$

$= 2(66.8742)$

$= 137.7484$

$= 137.75$ cm² #
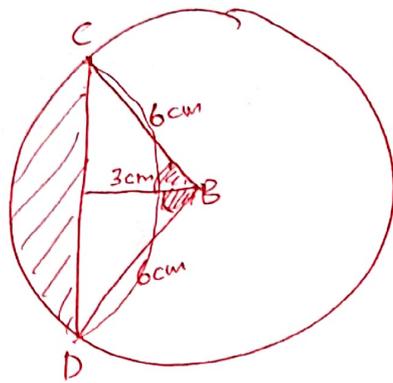
(b)

$\angle CBD = 2.0947$ rad.

$$\text{Luas segment minor} = \text{Luas Sektor} - \text{Luas Segitiga}$$

$$= \frac{1}{2}r^2\theta - \frac{1}{2}r^2\sin\theta$$

$$= \frac{1}{2}(6)^2(2.0947) - \frac{1}{2}(6)^2\sin 2.0947$$

mode dlm radian.

$$= \underbrace{37.7046}$$

$$= \frac{1}{2}6^2[2.0947 - \sin 2.0947]$$

$$= 22.1189$$

$$\text{Luas Kawasan Berlorek} = 2\left[\text{Luas bulatan} - 2\times\text{Luas segment}\right]$$

$$= 2\left[\frac{1}{2}r^2(2\pi) - 2(22.1189)\right]$$

$$= 137.7484$$

$$= 137.75\ cm^2\ \#$$

14.

$$2:3$$

B
(2, m)

A
(1, 1)
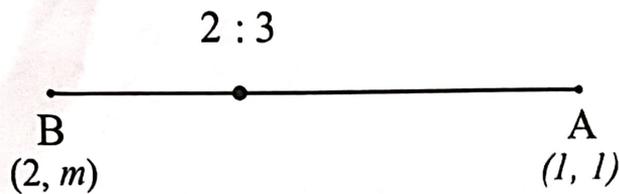
$\text{Koordinat} = \left(\dfrac{3(2)+2(1)}{2+3}, \dfrac{3(m)+2(1)}{2+3} \right)$ ✓ ①

$= \left(\dfrac{8}{5}, \dfrac{3m+2}{5} \right)$

$2x + y = k$

$2\left(\dfrac{8}{5} \right) + \dfrac{3m+2}{5} = k$ ✓ ②

$m = \dfrac{5k-18}{3}$ ✓ ③

15. $\overrightarrow{AB} = \lambda \overrightarrow{AM}$ ✓ ①

(i) Tak dapat kaitkan soalan dgn vektor selari dan sifat segaris

Perbandingan komponen

komponen $\underset{\sim}{i}$

$\lambda = 2$, ✓

komponen $\underset{\sim}{j}$ ✓ ②

$\lambda = \dfrac{5}{3}$

Tidak kena tembakan pada kapal perang B kerana tidak segaris dengan Kapal perang A dan Kapal Perang musuh. ✓ ③

16. $2k - h = -5$

$k = \dfrac{h-5}{2}$ ✓ ②

$-(2k-h) = 5$ ✓ ①

$2k - h = -5$

Tak faham nilai mutlak.

17. $\delta r = 0.03r$ ✓ ①

$V = \dfrac{4}{3}\pi r^3$

$\dfrac{dV}{dr} = 4\pi r^2$

$\delta V = \dfrac{dV}{dr} \cdot \delta r$

$\delta V = 4\pi r^2 (0.03r)$

$\delta V = 0.12\pi r^3$ ✓ ②

% error in volume $= \dfrac{\delta V}{V} \times 100\%$

$= \dfrac{0.12\pi r^3}{\dfrac{4}{3}\pi r^3} \times 100\%$

$= 9\%$ ✓ ③

Tak Faham maksud kesilapan 3%
jwp: $\delta r = 3\% \; r = 0.03r$
murid ambil $r = 3\%$

18.

a) $\dfrac{3(-p)}{5} = -\dfrac{3}{5}p$

b) $\displaystyle\int_1^4 4\,dx + \int_1^4 g(x)\,dx = [4x]_1^4 + p = 12 + p$

19.

$\displaystyle\int_1^k \dfrac{5}{x^2}\,dx = \int_k^5 \dfrac{5}{x^2}\,dx$

$\left[-\dfrac{5}{x}\right]_1^k = \left[-\dfrac{5}{x}\right]_k^5$

$\left(-\dfrac{5}{k}\right) - \left(-\dfrac{5}{1}\right) = \left(-\dfrac{5}{5}\right) - \left(-\dfrac{5}{k}\right)$

$k = \dfrac{5}{3}$ ③

① Murid tak boleh lakukan kamiran $\displaystyle\int 5x^{-2}\,dx$

20.

(a) $\dfrac{1}{5} \times (1-k) = \dfrac{1}{15}$

$\dfrac{1}{5} \times (1-k) = \dfrac{1}{15}$

$k = \dfrac{2}{3}$

(b) P(1 org sahaja dipilih) $= \left(\dfrac{4}{5} \times \dfrac{1}{3}\right) + \left(\dfrac{1}{5} \times \dfrac{2}{3}\right)$

$= \left(\dfrac{2}{5}\right)$
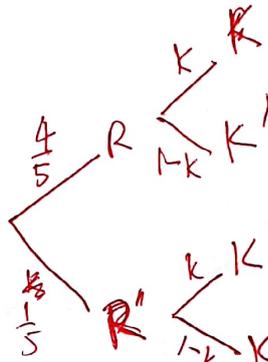
① Murid tak dapat bezakan soalan kebarangkalian dan soalan pilihatur

$\dfrac{4}{5}$ R $\big<$ K, K'(1-k)

$\dfrac{1}{5}$ R' $\big<$ K, K'(1-k) → $\dfrac{1}{5}(1-k) = \dfrac{1}{15}$

1 - Tidak permudahkan jawapan.

21.

Diketahui $y = 2\sin 2x$ ①

$2\sin 2x = \dfrac{1}{2}$ ②

$\sin 2x = \dfrac{1}{4}$

$2x = \sin^{-1}\dfrac{1}{4}$ ③

$2x = 14.48°, 165.52°, 374.48°, 525.52°$

$x = 7.24°, 82.76°, 187.24°, 262.76°$ ④

① Murid mengabaikan 2 kitaran lengkap
jwp : $y = 2\sin 2x$
murid tulis $y = 2\sin x$.

② Murid tidak dapat menulis persamaan fn. trigo dari graf trigo ys diberi.

22. (a) Number of ways of choosing 3 out of 5 boys = $^5C_3$

Number of ways of choosing 2 out of 5 girls = $^5C_2$

Therefore, the number of ways of choosing 3 boys and 2 girls in the team

$$= {}^5C_3 \times {}^5C_2 \quad ①$$

$$= 10 \times 10$$

$$= 100 \quad ②$$

(b) Number of ways of choosing 3 out of 5 girls = $^5C_3$

Number of ways of choosing 4 out of 5 girls = $^5C_4$

Number of ways of choosing 5 out of 5 girls = $^5C_5$

Therefore, the number of ways of choosing at least 3 girls in the team

$$= {}^5C_3 + {}^5C_4 + {}^5C_5$$

$$= 10 + 5 + 1$$

$$= 16$$

Handwritten annotations right side:
① Salah operasi
$\div \times : \times$
murid guna $+$

② Murid tak dpt selesai
mslh melibatkan operasi
ketaksamaan
"sekurang-kurangnya"

5P 5L

③ Salah rumus.

$$^5C_3\,{}^5C_2 + {}^5C_4\,{}^5C_1 + {}^5C_5\,{}^5C_0$$

$$= 126.$$

23. $\sum x^2{}_{New} = 1250 - 7^2 \quad ✓①$

$\sum x^2{}_{New} = 1201$

$9 = \dfrac{\sum x}{6}$

$\sum x_{new} = 54 - 7$

$\bar{x} = \dfrac{47}{5}$

$\sigma^2 = \sqrt{\dfrac{1201}{5} - \left(\dfrac{47}{5}\right)^2} \quad ✓②$

$12.31 \quad ✓③$

Annotations:
① Tak faham rumus varians data tak terkumpul.

② Kesilapan mengenalpasti soalan tab. binomial dan statistik

24. $4 = 8p \quad ✓$

$p = \dfrac{1}{2}$ or 0.5

Annotation: ① Tak tahu rumus min Tab. Binomial.

25. $2 = \dfrac{50 - \mu}{\sigma} \quad ✓①$

$-0.97 = \dfrac{32.18 - \mu}{\sigma} \quad ✓②$

$\sigma = 6, \mu = 38 \quad ✓③$

Annotations:
① Tak prihatin ayat bertabur secara normal.

② Tak bezakan soalan skor-z dan $P(X > k)$. $/P(X < k)$