JAWAPAN

Pentaksiran Akhir Tahun

Bahagian A

1. Jawapan / *Answer*: **A**

2. Jawapan / *Answer*: **B**

3. A: 37, 34, 31, 28, 25, …
(−3 −3 −3 −3)
Jujukan / *Sequence*

B: 192, 96, 48, 24, 12, …
(÷2 ÷2 ÷2 ÷2)
Jujukan / *Sequence*

C: 5, 10, 20, 40, 80, …
(×2 ×2 ×2 ×2)
Jujukan / *Sequence*

D: 1, 3, 5, 7, 9, 13, …
(+2 +2 +2 +2 +2)
Bukan jujukan / *Not a sequence*

Jawapan / *Answer*: **D**

4. (+13 −13 −13 −13)
93, 80, 67, 54, 41, …

$p = 93, r = 54$

Jawapan / *Answer*: **C**

5. Nyahpecutan / *Deceleration*

$$= \frac{90 - 120}{0.4}$$
$$= -\frac{30}{0.4}$$
$$= -75 \text{ km/j}^2 \text{ (km/h}^2\text{)}$$

Jawapan / *Answer*: **C**

6. $$\frac{2k}{k^2 - 2k - 3} \div \frac{4}{(k-3)}$$
$$= \frac{2k}{(k-3)(k+1)} \times \frac{(k-3)}{4}$$
$$= \frac{k}{(k+1)} \times \frac{1}{2}$$
$$= \frac{k}{2(k+1)}$$

Jawapan / *Answer*: **C**

7. $$t = \frac{3}{8}\left(-2 - \sqrt{4}\right)^2 - 5$$
$$= \frac{3}{8}(-4)^2 - 5$$
$$= \frac{3}{8}(16) - 5$$
$$= 6 - 5$$
$$= 1$$

Jawapan / *Answer*: **A**

8. Hasil tambah sudut pedalaman pentagon
Sum of interior angles of a pentagon
$= (5 - 2) \times 180°$
$= 3 \times 180°$
$= 540°$

$\angle PTS = 180° - 102°$
$= 78°$

$540° = 55° + 78° + (360° - 125°) + 3x + x$
$540° = 55° + 78° + 235° + 4x$
$4x = 540° - 55° - 78° - 235°$
$4x = 172°$
$x = 43°$

Jawapan / *Answer*: **A**

9. $p = q^2 + 3$
$x = 0^2 + 3$
$= 3$

$19 = y^2 + 3$
$y^2 = 16$
$y = \sqrt{16}$
$= 4$

Jawapan / *Answer*: **C**

10. $25a^2 - 81b^2 = (5a + 9b)(5a - 9b)$

Jawapan / *Answer*: **A**

11. $10 - 6 = 4$
$20 - 16 = 4$
$30 - 26 = 4$
$40 - 36 = 4$
$50 - 46 = 4$

$y = x - 4$

Jawapan / *Answer*: **D**

12. $\frac{k}{7} - 15 = 3k + 25$

$\frac{k}{7} - 3k = 25 + 15$

$-\frac{20}{7}k = 40$

$-20k = 280$

$k = -14$

Jawapan / *Answer*: **D**

13. $AB = \sqrt{10^2 - 8^2} = 6$ cm

$ABCD = 6 + 10 + 10 = 26$ cm

$PQ = \sqrt{13^2 - 5^2} = 12$ cm

$PQRS = 12 + 13 + 13 = 38$ cm

$ABCD + PQRS = 26 + 38 = 64$ cm

Jawapan / *Answer*: **D**

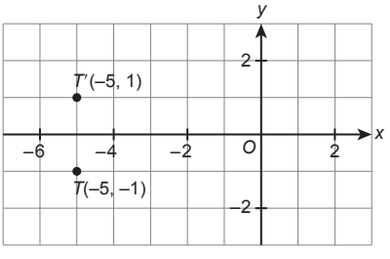
14. Panjang kuboid
Length of cuboid

$= 600 \div 5 \div 12$

$= 10$ cm

Jawapan / *Answer*: **B**

15.



Jawapan / *Answer*: **B**

16.

Markah ***Marks***	**Titik tengah, *x*** ***Midpoint, x***	**Kekerapan, *f*** ***Frequency, f***	***f* × *x***
1 – 10	5.5	4	22
11 – 20	15.5	6	93
21 – 30	25.5	9	229.5
31 – 40	35.5	7	248.5
41 – 50	45.5	4	182
		$\Sigma f = 30$	$\Sigma fx = 775$

Min / *Mean*

$= \frac{775}{30} = 25.83$

Jawapan / *Answer*: **A**

17. Jarak yang dilalui oleh kereta selepas 45 minit
The distance travelled by the car after 45 minutes

$= 110 \times \frac{45}{60} = 82.5$ km

Jarak yang dilalui oleh van selepas 45 minit
The distance travelled by the van after 45 minutes

$= 90 \times \frac{45}{60} = 67.5$ km

Perbezaan jarak / *Difference of the distance*

$= 82.5 - 67.5$

$= 15$ km

Jawapan / *Answer*: **D**

18. $\frac{8}{\text{Jumlah manik}} = \frac{2}{5}$
Total beads

Jumlah manik/ *Total beads*

$= 8 \div \frac{2}{5}$

$= 20$ manik / *beads*

Kebarangkalian memilih sebiji manik hijau
Probability of selecting a green bead

$= 1 - \frac{8 + 6}{20}$

$= 1 - \frac{14}{20}$

$= \frac{3}{10}$

Jawapan / *Answer*: **B**

19. Jejari bulatan / *Radius of the circle*

$= \sqrt{(1 - 5)^2 + [-3 - (-6)]^2}$

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

$= \sqrt{16 + 9}$

$= \sqrt{25}$

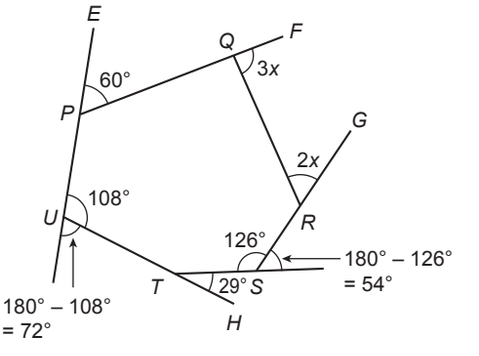
$= 5$ unit / *units*

Diameter bulatan / *Diameter of the circle*

$= 5 + 5 = 10$ unit / *units*

Jawapan / *Answer*: **C**

20.



$60° + 3x + 2x + 54° + 29° + 72° = 360°$

$215° + 5x = 360°$

$5x = 360° - 215°$

$x = \frac{145°}{5}$

$= 29°$

Jawapan / *Answer*: **A**

Bahagian B

21. (a)

Mod / *Mode*	Median
40	33

25, 27, 27, 29, 31, 31, 35, 36, 36, 40, 40, 40

Median

$= \frac{1}{2}\left[\text{data ke-}\left(\frac{12}{2}\right) + \text{data ke-}\left(\frac{12}{2}+1\right)\right]$

$\frac{1}{2}\left[\left(\frac{12}{2}\right)^{th}\ data + \left(\frac{12}{2}+1\right)^{th}\ data\right]$

$= \frac{1}{2}(\text{data ke-6} + \text{data ke-7})$

$\frac{1}{2}(6^{th}\ data + 7^{th}\ data)$

$= \frac{1}{2}(31 + 35)$

$= \frac{1}{2}(66)$

$= 33$

(b)

Jujukan nombor *Number sequence*	Pola *Pattern*
4, 11, 18, 25, 32, 39, 46, …	Tambah 7 kepada nombor sebelumnya. *Add 7 to the previous number.*
5 000, 1 000, 200, 40, …	Bahagi nombor sebelumnya dengan 5. *Divide the previous number by 5.*

22. (a) $(3 - 2p)^2 + 5(p - 3)$

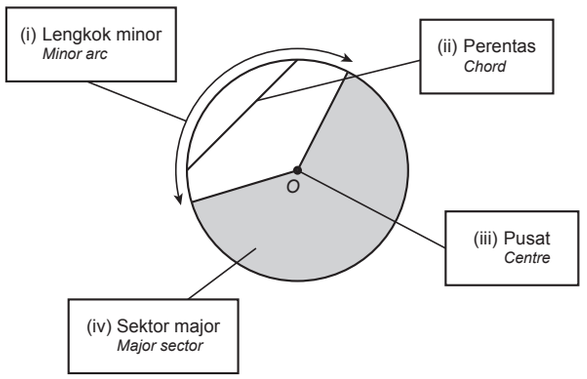
$= \boxed{9 - 12p + 4p^2} + 5p - 15$

$= \boxed{4p^2 - 7p - 6}$

(b) (i) *Prisma / Prism*

(ii) Kon / *Cone*

23.



24. (a) Hasil tambah sudut pedalaman pentagon
Sum of interior angles of pentagon
$= (5 - 2) \times 180°$
$= 3 \times 180°$
$= 540°$

(b) Hasil tambah sudut pedalaman heptagon
Sum of interior angles of heptagon
$= (7 - 2) \times 180°$
$= 5 \times 180°$
$= 900°$

(c) Hasil tambah sudut pedalaman oktagon
Sum of interior angles of octagon
$= (8 - 2) \times 180°$
$= 6 \times 180°$
$= 1\,080°$

(d) Hasil tambah sudut pedalaman dekagon
Sum of interior angles of decagon
$= (10 - 2) \times 180°$
$= 8 \times 180°$
$= 1\,440°$

25. (a) (i) Translasi *Translation* $\begin{pmatrix} 2 \\ -4 \end{pmatrix}$

(ii) Translasi *Translation* $\begin{pmatrix} -3 \\ -2 \end{pmatrix}$

(b) (i)

Saiz kasut *Size of the shoes*	Gundalan *Tally*
28	𝍸 𝍸
29	𝍸
30	////
31	𝍸 𝍸 ///

Mod *Mode* = Saiz 31 *Size* 31

(ii)

Nama *Name*	Kekerapan melakukan kesalahan ejaan *Frequency of spelling error*
Amy	24
Bella	37
Cindy	29
Damar	35

Mod *Mode* = Bella

Bahagian C

26. (a) Kebarangkalian mendapat sebiji guli hitam
The probability of getting a black marble

$$\frac{21}{21+25+w} = \frac{1}{7}$$
$$46 + w = 147$$
$$w = 147 - 46$$
$$= 101$$

Maka/ *Hence*
$w = 101$

(b) Luas / *Area*

$$= \frac{270°}{360°} \times \frac{22}{7} \times 14 \times 14 - \left(\frac{1}{2} \times 14 \times 10\right)$$
$$= 462 - 70$$
$$= 392 \text{ m}^2$$

(c) (i) Kecerunan / *Gradient*

$$= \frac{7-3}{-1-(-5)}$$
$$= \frac{4}{4}$$
$$= 1$$

(ii) Kecerunan / *Gradient*

$$= \frac{4-(-2)}{9-8}$$
$$= \frac{6}{1}$$
$$= 6$$

(iii) *TU*

27. (a) 15, 12, 9, 6
n : 1, 2, 3, 4
$-3n$: −3, −6, −9, −12
$18 - 3n$: 15, 12, 9, 6
$\therefore 18 - 3n, n = 1, 2, 3, 4$

(b) Sudut pedalaman pentagon
Interior angle of pentagon

$$= \frac{(5-2) \times 180°}{5}$$
$$= 108°$$

Sudut pedalaman oktagon
Interior angle of octagon

$$= \frac{(8-2) \times 180°}{8}$$
$$= 135°$$

Maka / *Hence*
$x = 360° - 108° - 135°$
$= 117°$

(c) Luas bulatan berpusat P / *Area of circle with centre P*
$\pi j^2 = 16\pi$
$j^2 = 16$
$j = 4$ cm

Luas bulatan berpusat Q / *Area of circle with centre Q*
$\pi j^2 = 36\pi$
$j^2 = 36$
$j = 6$ cm

Diameter $= 4 + 6$
$= 10$ cm

Jejari/*Radius* = 5 cm

Luas bulatan berlorek / *Area of shaded circle*
$= \pi \times 5 \times 5$
$= 25\pi \text{ cm}^2$

28. (a) (i)

$$\frac{x+2}{3p} = \frac{\sqrt{4y}}{3}$$
$$\frac{x+2}{3p} = \frac{2y}{3}$$
$$3(x+2) = 3p(2y)$$
$$3x + 6 = 6py$$
$$p = \frac{3x+6}{6y}$$
$$= \frac{x+2}{2y}$$

(ii) $p = \frac{x+2}{2y}$

$$= \frac{14+2}{2(-2)}$$
$$= \frac{16}{-4}$$
$$= -4$$

(b) $(x+3)^2 - 5$
$= x^2 + 3x + 3x + 9 - 5$
$= x^2 + 6x + 4$

(c) (i) $L(2, -3)$

(ii) Koordinat titik tengah
Coordinates of the midpoint

$$= \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$
$$= \left(\frac{-4+2}{2}, \frac{5+(-3)}{2}\right)$$
$$= \left(\frac{-2}{2}, \frac{2}{2}\right)$$
$$= (-1, 1)$$

29. (a) (i) {(2, 8), (4, 16), (6, 24), (8, 32)}

(ii) Domain = {2, 4, 6, 8}
Kodomain / *Codomain* = {8, 16, 24, 32}
Julat / *Range* = {8, 16, 24, 32}

(b) $PQ = \sqrt{196} = 14$ cm

Jejari / *Radius* $= \frac{14}{2} = 7$ cm

Perimeter

$$= \left(\frac{3}{4} \times 2 \times \frac{22}{7} \times 7\right) + 7 + 7$$
$$= 33 + 14$$
$$= 47 \text{ cm}$$

(c) $\frac{5}{12k} - \frac{4g-2}{24k} = \frac{10-(4g-2)}{24k}$

$= \frac{10-4g+2}{24k}$

$= \frac{12-4g}{24k}$

$= \frac{\cancel{4}(3-g)}{\cancel{24}k}$

$= \frac{3-g}{6k}$

30. (a) (i)

Markah *Marks*	**Kekerapan** *Frequency*
20 – 29	2
30 – 39	9
40 – 49	7
50 – 59	2

(ii)

Markah *Marks*	**Titik tengah** *Midpoint* (**x**)	**Kekerapan** *Frequency* (**f**)	$f \times x$
20 – 29	24.5	2	49
30 – 39	34.5	9	310.5
40 – 49	44.5	7	311.5
50 – 59	54.5	2	109
		$\sum f = 20$	$\sum fx = 780$

Min / *Mean*

$= \frac{780}{20}$

$= 39$

(b) Isi padu silinder / *Volume of cylinder*

$\frac{22}{7} \times 7^2 \times t = 3\,080$

$154t = 3\,080$

$t = \frac{3\,080}{154}$

$= 20$ cm

Maka/ *Hence*

$t = 20$

(c) Bagi satu pertiga akhir perjalanannya,
For the one third of the final journey,

Jarak/ *Distance* $= 84 \times \frac{50}{60}$

$= 70$ km

Jumlah jarak bagi dua pertiga perjalanan yang pertama
Total distance for the first two thirds of the journey

$= 2 \times 70$ km

$= 140$ km

Masa yang diambil/ *Time taken* $= \frac{140}{70}$

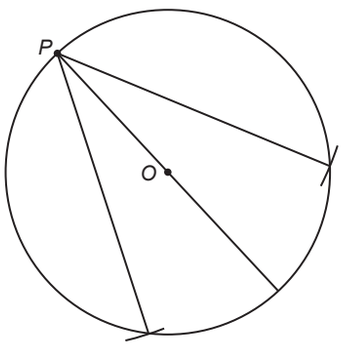
$= 2$ jam/ *hours*

Maka, jumlah masa yang diambil bagi keseluruhan perjalanan
Thus, total time taken for the whole journey

= 2 jam + 30 minit + 50 minit
2 *hours* + 30 *minutes* + 50 *minutes*

= 3 jam 20 minit
3 *hours* 20 *minutes*

31. (a)



(b) $\frac{3}{8} \times$ Jumlah murid = 15
Number of students

Jumlah murid/ *Number of students* $= 15 \times \frac{8}{3}$

$= 40$

Pecahan bagi murid yang suka aiskrim mangga dan vanila
Fraction of students who like mango and vanilla ice cream

$= 1 - \left(2 \times \frac{3}{8}\right)$

$= \frac{1}{4}$

Maka, bilangan murid yang suka aiskrim mangga
Thus, number of students who like mango ice cream

$= \left(\frac{1}{4} \div 2\right) \times 40$

= 5 orang murid / *students*

(c) (i)

x	–3	–2	–1	0	1	2
y	–1	–3	–3	–1	3	9

(ii)