Penyelesaian Lengkap

Ujian Akhir Sesi Akademik

Bahagian A

1 Jawapan/*Answer*: A

2 $13\frac{1}{2} + 96 \div 3 \div 4 = \frac{27}{2} + 32 \div 4$

$= \frac{27}{2} + 8$

$= \frac{43}{2}$

$= 21.5$

Jawapan/*Answer*: B

3 $36 \div 4 = 9$, $180 \div 36 = 5$

Jawapan/*Answer*: C

4

3	108, 120, 144
4	36, 40, 48
	9, 10, 12

FSTB/*HCF* $= 3 \times 4 = 12$

$n - 3 = 12$

$n = 15$

Jawapan/*Answer*: C

5 $\sqrt[3]{512} = 8$

Luas/*Area* $= 8 \times 8 = 64\ \text{cm}^2$

Jawapan/*Answer*: B

6 $M : M - Y = 21 : 21 - 19$

$M : 16 = 21 : 2$

$\frac{M}{16} = \frac{21}{2}$

$M = 168$

Jawapan/*Answer*: C

7 $L : P = 64 : 36$

$= 16 : 9$

Jawapan/*Answer*: D

8 $3x^3y \div 4x^2y^3z \times 6yz$

$= \frac{3 \times x \times x \times x \times y \times 6 \times y \times z}{4 \times x \times x \times y \times y \times y \times z}$

$= \frac{9x}{2y}$

Jawapan/*Answer*: A

9 $41 - 3x = x + 13$

$4x = 28$

$x = 7$

Jawapan/*Answer*: B

10 $8x + 3y = 100 - 43$

$8x + 3y = 57$

Jawapan/*Answer*: D

11 $3p + q = 8$ ... ①

$2p - q = 12$ ... ②

① + ②: $5p = 20$

$p = 4$

Jawapan/*Answer*: C

12 $-2 \leqslant 3x + 1 < 10$

$-2 \leqslant 3x + 1$ $\quad 3x + 1 < 10$

$3x \geqslant -3$ $\quad 3x < 9$

$x \geqslant -1$ $\quad x < 3$

$\therefore x = -1, 0, 1, 2$

Jawapan/*Answer*: C

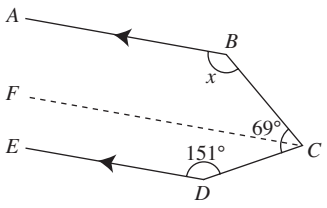
13 $\frac{14}{3} = 4.666...$

Maka, bilangan maksimum pen yang boleh dibeli oleh Zafri ialah 4 batang.

Thus, the maximum number of pens that Zafri can buy is 4.

Jawapan/*Answer*: B

14



$\angle DCF = 180° - 151° = 29°$

$x = 180° - (69° - 29°) = 140°$

Jawapan/*Answer*: B

15 Bagi/*For* ΔQRS, $\angle SQR = \angle QRS = \angle RSQ$

$\angle SQR = \frac{180°}{3} = 60°$

$x = 360° - 69° - 83° - (180° - 60°)$

$= 88°$

Jawapan/*Answer*: D

16 Luas/*Area* $= 98\ \text{cm}^2$

$98 = \frac{1}{2} \times (x + 11) \times 14$

$x + 11 = 14$

$x = 3$

Jawapan/*Answer*: A

17 Panjang sisi segi empat sama

Length of sides of the square

$= \frac{24}{4}$

$= 6$ cm

Luas segi empat sama

Area of the square

$= 6 \times 6$

$= 36\ \text{cm}^2$

Jawapan/*Answer*: C

18 $\xi = \{2, 3, 4, 5, 6, 7, 8, 9, 10\}$

$P = \{2, 3, 4, 6\}$

$P' = \{5, 7, 8, 9, 10\}$
$n(P') = 5$
Jawapan/*Answer*: C

19 $360° - 92° - 56° - 68° - 84° = 60°$

$$\frac{60°}{360°} \times x = 30$$

$$x = 30 \times \frac{360°}{60°} = 180$$

Jawapan/*Answer*: B

20 Panjang sisi segi empat sama
Length of sides of the square
$= \sqrt{144}$
$= 12$ cm

$x = \sqrt{37^2 - 12^2}$
$= \sqrt{1\,225}$
$= 35$

Jawapan/*Answer*: D

Bahagian B

1

2	420
2	210
3	105
5	35
7	7
	1

1	(2)	(3)	4	(5)
6	(7)	8	9	10

2 (a) $3 \times 7 : 8 \times 7 = 21 : 56$ [≠]

(b) $6 \times \frac{4}{3} : 15 \times \frac{4}{3} = 8 : 20$ [=]

(c) $4 \times \frac{7}{4} : 7 \times \frac{7}{4} = 7 : \frac{49}{4}$ [≠]

(d) $7 \times \frac{9}{7} : 21 \times \frac{9}{7} = 9 : 27$ [=]

3 (a) ✓
(b) ✗
(c) ✓
(d) ✗

4 (a) $\sqrt[3]{8} = 2$, $\sqrt[3]{64} = 2$, $\sqrt[3]{1\,000} = 10$

(b) 0.2^2 adalah lebih daripada 0.02^2.
0.2^2 *is more than* 0.02^2.

5

Poligon *Polygon*	**Bilangan sisi** *Number of sides*	**Bilangan pepenjuru** *Number of diagonals*
Pentagon	5	$\frac{5(5-3)}{2} = 5$
Heptagon	7	$\frac{7(7-3)}{2} = 14$
Oktagon *Octagon*	8	$\frac{8(8-3)}{2} = 20$

Bahagian C

1 (a) $15 \times (800 - 2) = 15 \times 800 - 15 \times 2$
$= 12\,000 - 30$
$= 11\,970$

(b) (i) $72 = 2^3 \times 3^2$
$90 = 2 \times 3^2 \times 5$

(ii) FSTB/*HCF* $= 2 \times 3^2 = 18$
GSTK/*LCM* $= 2^3 \times 3^2 \times 5 = 360$

(c)

2	84, 144, 180
2	42, 72, 90
3	21, 36, 45
	7, 12, 15

FSTB/*HCF* $= 2 \times 2 \times 3 = 12$

2 (a) (i) $\left(3\frac{5}{6}\right)^3 = \left(\frac{23}{6}\right)^3$

$$= \frac{12\,167}{216}$$

$$= 56\frac{71}{216}$$

(ii) $\sqrt[3]{0.000512} - 0.03^2$
$= 0.08 - 0.0009$
$= 0.0791$

(b) 3 unit/*units* = 9
1 unit = 3
Jumlah bilangan guli
Total number of marbles
$= 23 \times 3$
$= 69$

Kaedah alternatif
Alternative method

$$\frac{9-6}{6+9+8} = \frac{9}{x}$$

$$\frac{3}{23} = \frac{9}{x}$$

$$x = 9 \times \frac{23}{3} = 69$$

(c) (i) $\frac{72 \times 1\,000}{1 \times 3\,600} = 20 \text{ m s}^{-1}$

(ii) $\frac{4.2 \div 1\,000}{1 \div 100^2} = 42 \text{ kg m}^{-2}$

3 (a) (i) $-3xy \times 4xy^2z = -12x^2y^3z$

(ii) $\frac{-2pq^2 \times 6qr^2}{8pr^3} = \frac{-2 \times p \times q \times q \times 6 \times q \times r \times r}{8 \times p \times r \times r \times r}$

$$= -\frac{3q^3}{2r}$$

(b) Lebar/*Width* $= x$ cm
Panjang/*Length* $= (2x + 1)$ cm
Perimeter $= 2x + 2(2x + 1)$
$26 = 2x + 2(2x + 1)$
$6x = 24$
$x = 4$
∴ Panjang/*Length* $= [2(4) + 1]$ cm $= 9$ cm
Lebar/*Width* $= 4$ cm

(c) $p + q = 11$ ... ①
$p - q = 3$ ... ②
① – ②: $2q = 8$
$q = 4$

4 (a) $5 - 2x \leqslant 9$
$-2x \leqslant 4$
$x \geqslant -2$

$\frac{x-3}{3} < 7 - x$

$x - 3 < 21 - 3x$
$4x < 24$
$x < 6$
$\therefore x = -2, -1, 0, 1, 2, 3, 4, 5$

(b) $x + 2x + 3x + 4x = 360°$
$10x = 360°$
$x = 36°$

(c) $\angle FCB = 180° - 36° = 144°$
$y + 77° = 144°$
$y = 67°$

(d) $\frac{180°}{3} = 60°$
$p + q = 60° + 33° = 93°$

5 (a) $m = 180° - 58° - 34° = 88°$
$n = 180° - 58° = 122°$

(b) Luas trapezium *ABCD*
Area of trapezium ABCD
$= \frac{1}{2} \times (8 + 5) \times 6$
$= 39 \text{ cm}^2$
Luas lelayang *GEHF*
Area of kite GEHF
$= \frac{1}{2} \times 5 \times 6$
$= 15 \text{ cm}^2$
Luas kawasan berlorek
Area of shaded region
$= 39 - 15$
$= 24 \text{ cm}^2$

(c) Luas segi empat selari *KLMN*
Area of parallelogram KLMN
$= 14 \times 8$
$= 112 \text{ cm}^2$
Luas segi tiga *NQM*
Area of triangle NQM
$= \frac{1}{2} \times 14 \times 5$
$= 35 \text{ cm}^2$
Luas lelayang *PQMR*
Area of kite PQMR
$= \frac{1}{2} \times 8 \times x$
$= 4x \text{ cm}^2$
Luas kawasan berlorek $= 61 \text{ cm}^2$
Area of shaded region $= 61 \text{ cm}^2$
$112 - 35 - 4x = 61$
$4x = 16$
$x = 4$

6 (a) (i) $N \subset M$
(ii) $n(M) = 5$, $n(N') = 6$

(b) (i) \$0.10
(ii) \$0.20

(c) (i) 23
(ii) 79

(d) $QR = \sqrt{29^2 - 20^2}$
$= 21 \text{ cm}$
Luas segi tiga *PQS*
Area of triangle PQS
$= \frac{1}{2} \times 20 \times (21 + RS)$
$= 10 \times (21 + RS)$
Luas segi tiga *PQR*
Area of triangle PQR
$= \frac{1}{2} \times 20 \times 21$
$= 210 \text{ cm}^2$
Luas segi tiga *PRS* $= 270 \text{ cm}^2$
Area of triangle PRS $= 270 \text{ cm}^2$
$10 \times (21 + RS) - 210 = 270$
$21 + RS = 48$
$RS = 27 \text{ cm}$
$PS = \sqrt{20^2 + (21 + 27)^2}$
$= 52 \text{ cm}$