

Penyelesaian Lengkap

PRAKTIS 1

Kertas 1

1 A Ia adalah ungkapan kuadratik dalam satu pemboleh ubah.

It is a quadratic expression in one variable.

B Ia adalah ungkapan kubik.

It is a cubic expression.

C Ia bukan ungkapan kuadratik.

Not a quadratic expression.

D Lebih daripada satu pemboleh ubah.

More than one variable.

Jawapan/Answer: A

$$2 \quad x = \frac{0 + (-4)}{2}$$

$$x = -2$$

Jawapan/Answer: B

$$3 \quad 2 = a(-3)^2 + 3(-3) + 5$$

$$9a - 4 = 2$$

$$a = \frac{2}{3}$$

Jawapan/Answer: B

$$4 \quad x^2 - 5x - 18 = 48$$

$$x^2 - 5x - 18 - 48 = 0$$

$$x^2 - 5x - 66 = 0$$

$$(x - 11)(x + 6) = 0$$

$$x = 11 \text{ atau/or } x = -6$$

Jawapan/Answer: C

$$5 \quad (-1) - (-3) = 2$$

$$-3 - 2 = -5$$

Punca-punca ialah -1 dan -5 .

The roots are -1 and -5 .

Jawapan/Answer: B

$$6 \quad x = -3 \text{ dan/and } x = 2$$

$$(x + 3)(x - 2) = 0$$

$$x^2 + x - 6 = 0$$

Jawapan/Answer: A

$$7 \quad x = -7 \text{ dan/and } x = 2$$

$$-(x + 7)(x - 2) = 0$$

$$-x^2 - 5x + 14 = 0$$

$$f(x) = -x^2 - 5x + 14$$

Jawapan/Answer: D

$$8 \quad 3x - 12 = (x + 3)(x - 7)$$

$$3x - 12 = x^2 - 4x - 21$$

$$x^2 - 7x - 9 = 0$$

Jawapan/Answer: D

9 A Pintasan-y ialah -15 .

The y-intercept is -15 .

B Graf bersilang dengan titik $-\frac{3}{2}$ dan $\frac{5}{4}$ pada paksi-x.

The graph intersects points $-\frac{3}{2}$ and $\frac{5}{4}$ on the x-axis.

C Graf berbentuk 'U'.

The graph is in the shape of 'U'.

D Punca-punca ialah $-\frac{3}{2}$ dan $\frac{5}{4}$. Bukan nombor bulat.

The roots are $-\frac{3}{2}$ and $\frac{5}{4}$. Not whole numbers.

Jawapan/Answer: D

10 Semakin lebar suatu graf berbentuk melengkung, semakin kecil nilai a . a bernilai positif kerana graf berbentuk 'U'.

The wider the curved shape graph, the smaller the value of a . a is a positive value because the graph has a 'U' shape.

$$p = 5, q = 3$$

Jawapan/Answer: C

11 Jarak = Laju \times Masa

Distance = Speed \times Time

$$\text{Jarak/Distance} = (6 + 2x)(x - 7)$$

$$= 2x^2 - 8x - 42$$

Jawapan/Answer: B

$$12 \quad 2(80x) + 2\left(\frac{7800}{x}\right) = 3230$$

$$160x + \frac{15600}{x} = 3230$$

$$160x^2 - 3230x + 15600 = 0$$

$$16x^2 - 323x + 15600 = 0$$

$$(16x - 195)(x - 8) = 0$$

$$x = \frac{195}{16} \text{ atau/or } x = 8$$

(ditolak/rejected)

$$\therefore x = 8$$

Jawapan/Answer: A

13 $-7 - (-1) = -6$

Graf bergerak 6 unit ke bawah.

Graph moves 6 units downwards.

Jawapan/Answer: A

14 Apabila/When $f(x) = 0$

$$25 - x^2 = 0$$

$$x = \pm 5$$

Oleh kerana pekali x^2 ialah -1 , bentuk graf ialah ' \cap '
 Since coefficient of x^2 is -1 , the shape of graph is ' \cap '

Jawapan/Answer: A

Kertas 2

Bahagian A

1 (a) $x(3x - 3) = 2(5 - x)$
 $3x^2 - 3x + 2x - 10 = 0$

$3x^2 - x - 10 = 0$

(b) $3x^2 - x - 10 = 0$
 $(3x + 5)(x - 2) = 0$

$x = -\frac{5}{3}$ atau/or $x = 2$

2 (a) $x^2 + 15x + 56 = 0$

$(x + 7)(x + 8) = 0$

$x = -7$ atau/or $x = -8$

$p = -8, q = -7$

(b) $x = \frac{(-8) + (-7)}{2} = -\frac{15}{2}$

$y = \left(-\frac{15}{2}\right)^2 + 15\left(-\frac{15}{2}\right) + 56$

$= -\frac{1}{4}$

Titik minimum/Minimum point $\left(-\frac{15}{2}, -\frac{1}{4}\right)$

3 (a) $PR = \sqrt{x^2 + (x + 2)^2}$
 $= \sqrt{2x^2 + 4x + 4}$ cm

(b) $\sqrt{2x^2 + 4x + 4} = 10$

$2x^2 + 4x + 4 = 100$

$2x^2 + 4x - 96 = 0$

$x^2 + 2x - 48 = 0$

$(x + 8)(x - 6) = 0$

$x = -8$ atau/or $x = 6$

$x = 6$ sebab x tidak boleh bernilai negatif.

$x = 6$ because x cannot take negative values.

4 (a) $a\left(\frac{3}{2}\right)^2 - 9 = 0$

$\frac{9}{4}a = 9$

$a = 4$

(b) $4x^2 - 9 = 0$

$x^2 = \frac{9}{4}$

$x = \pm \frac{3}{2}$

Punca lain/The other root $= -\frac{3}{2}$

Bahagian B

5 (a) Luas/Area $= [4(x + 1)][6(x + 1)]$
 $= (4x + 4)(6x + 6)$
 $= 24x^2 + 48x + 24$ cm²

(b) $24x^2 + 48x + 24 = 216$

$24x^2 + 48x - 192 = 0$

$x^2 + 2x - 8 = 0$

$(x - 2)(x + 4) = 0$

$x = 2$ or/atau $x = -4$

$x = 2$ sebab x tidak boleh bernilai negatif.

$x = 2$ because x cannot take negative values.

(c) Baki luas kadboard

Area of remaining cardboard

$= 216 - 6\left(\frac{22}{7}\right)(2 + 1)^2$

$= 216 - \frac{1188}{7}$

$= 46\frac{2}{7}$ cm²

(d) $\frac{12}{2(2 + 1)} = 2$

$\frac{24}{2(2 + 1)} = 4$

Bilangan bulatan/Number of circles $= 2(4)$
 $= 8$

6 (a) $A = \frac{1}{2}[6 + (6 + x)](7 + x)$

$= \frac{1}{2}(x^2 + 19x + 84)$ cm²

(b) $(7 + x)^2 + x^2 = 13^2$

$2x^2 + 14x - 120 = 0$

$x^2 + 7x - 60 = 0$

$(x + 12)(x - 5) = 0$

$x = -12$ atau/or $x = 5$

$x = 5$ sebab x tidak boleh bernilai negatif.

$x = 5$ because x cannot take negative values.

(c) Panjang pita/Length of tape

$= 6 + (7 + 5) + (6 + 5) + 13$

$= 42$ m

(d) Luas/Area $= \frac{1}{2}[(5)^2 + 19(5) + 84]$

$= 102$ m²

Jumlah kos/Total cost $= (102)(\text{RM}15.90)$

$= \text{RM}1621.80$

7 (a) $(x - p)(x - 2p) = 0$

$x^2 - 3px + 2p^2 = 0$

(b) $(0)^2 - 3p(0) + 2p^2 = 18$

$p^2 = 9$

$p = \pm \sqrt{9}$

$p = 3$ atau/or -3

$p = 3$ sebab p berada di rantau positif.

$p = 3$ because p is in the positive region.

(c) $x = \frac{3 + 2(3)}{2}$

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

(d) $y = \left(\frac{9}{2}\right)^2 - 3(3)\left(\frac{9}{2}\right) + 2(3)^2$

$y = -\frac{9}{4}$

Koordinat S ialah $\left(\frac{9}{2}, -\frac{9}{4}\right)$.

The coordinates of S is $\left(\frac{9}{2}, -\frac{9}{4}\right)$.

Bahagian C

- 8 (a) $(x - 5)^2 + (x - 10)^2 = x^2$
 $x^2 - 30x + 125 = 0$
 $(x - 25)(x - 5) = 0$
 $x = 25$ atau/or $x = 5$
 $x = 25$ sebab x mesti lebih daripada 10.
 $x = 25$ because x must be more than 10.
- (b) Perimeter = $2[2(25) + 2(25) + 10 + 2(25)]$
= 320 mm

- (c) (i) $\frac{n}{2} = n^2 - 8n + 4$
 $2n^2 - 17n + 8 = 0$
 $(2n - 1)(n - 8) = 0$
 $n = \frac{1}{2}$ atau/or $n = 8$
 $n = 8$ (sebab n harus nombor bulat)
 $n = 8$ (because n must be a whole number)
- (ii) Bilangan bekas = $(8)^2 - 8(8) + 4$
Number of cases = 4
Jumlah kos/Total cost
 $t = (4)(RM5)$
= RM20