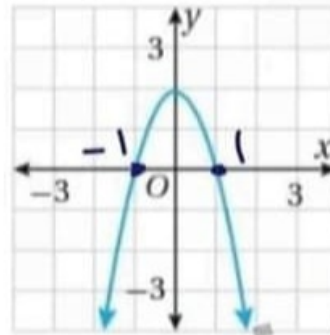


اختبار نهاية الوحدة

أختار رمز الإجابة الصحيحة لكل مما يأتي:



1 أي مما يأتي يُمثّل أحد

حلول المعادلة التربيعية

في الشكل المُجاور؟

a) 1

b) 2

c) 0

d) 3

2 جذرا المعادلة $3x^2 - 48 = 0$ هما:

a) -2, 2

b) -4, 4

c) -16, 16

d) 6, -6

3 جذرا المعادلة $x^2 - 17x + 42 = 0$ هما:

a) 1, 42

b) 2, 21

c) 3, 14

d) 6, 7

$$3x^2 - 48 = 0$$

$$\frac{3x^2}{3} = \frac{48}{3}$$

$$x^2 = 16$$

$$x = \pm 4$$

$$x^2 - 17x + 42 = 0$$

$$(x - 14)(x - 3) = 0$$

$$x - 14 = 0$$

$$x = 14$$

$$x - 3 = 0$$

$$x = 3$$

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

4 جذرا المُعادلة $2x^2 - x - 3 = 0$ هُما:

$$-\frac{3}{2} + \frac{2}{2}$$

$$(2x - 3)(x + 1) = 0$$

a) $-\frac{2}{3}, 1$

b) $\frac{2}{3}, -1$

$$-\frac{3}{2}x + \frac{1}{1}x$$

$$2x - \frac{3}{2} = 0$$

$$x + 1 = 0$$

c) $-\frac{3}{2}, 1$

d) $\frac{3}{2}, -1$

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

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

$$x = -1$$

$$3x^2 + 22x + 24$$

$$= (x + 6)(3x + 4)$$

$$-\frac{18}{3} + \frac{4}{3}$$

$$+\frac{6}{1}x + \frac{4}{3}x$$

a) $8x + 20$

b) $4x + 24$

c) $4x + 10$

d) $8x + 50$

$$C = 2L + 2W$$

$$= 2(3x + 4) + 2(x + 6)$$

$$= 6x + 8 + 2x + 12 = 8x + 20$$

5 مُستطيل مساحته $(3x^2 + 22x + 24)$ وحدة مُربَّعة. أيُّ ممَّا يأتي يُمثِّل محيطه؟

6 أيُّ المقادير الجبرية الآتية ليس مُربَّعا كاملا؟

a) $x^2 - 26x + 169$

b) $x^2 + 32x + 256$

c) $x^2 + 30x - 225$

d) $x^2 - 44x + 484$

أحلُّ كُلًّا مِنَ الْمُعادَلاتِ الآتيةِ بيانياً:

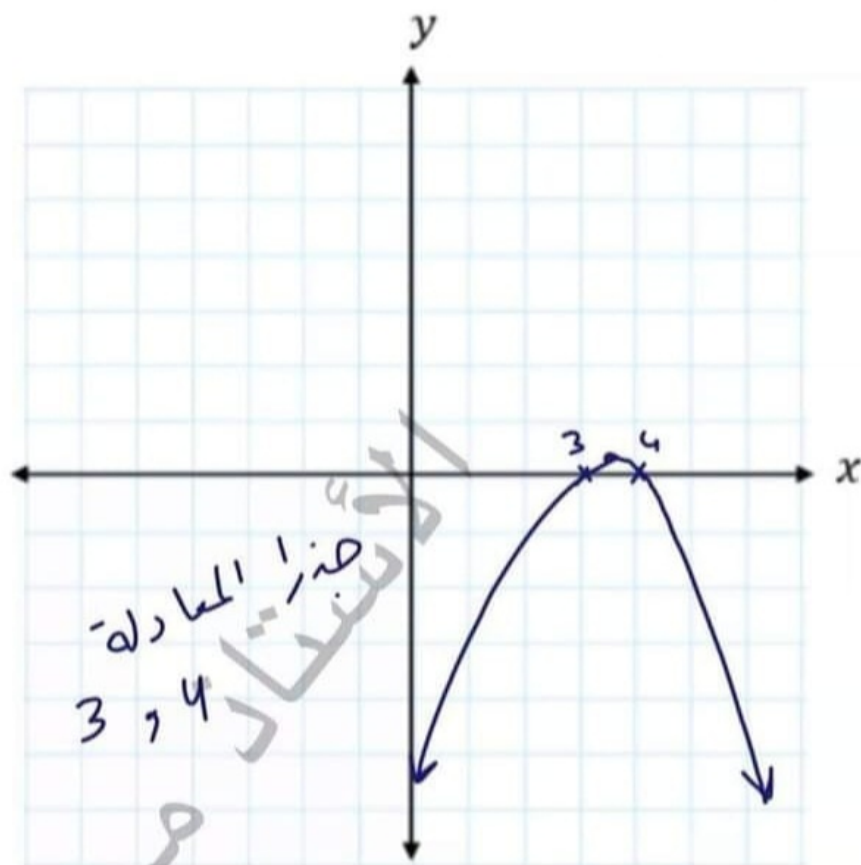
7 $-x^2 + 7x - 12 = 0$

$$f(x) = -x^2 + 7x - 12$$

$$x = -\frac{b}{2a} = \frac{-7}{2(-1)} = \frac{7}{2}$$

$$\begin{aligned} f\left(\frac{7}{2}\right) &= -\frac{49}{4} + \frac{49}{2} - 12 \\ &= \frac{49}{4} - \frac{48}{4} = \frac{1}{4} \end{aligned}$$

x	3	4
f	0	0



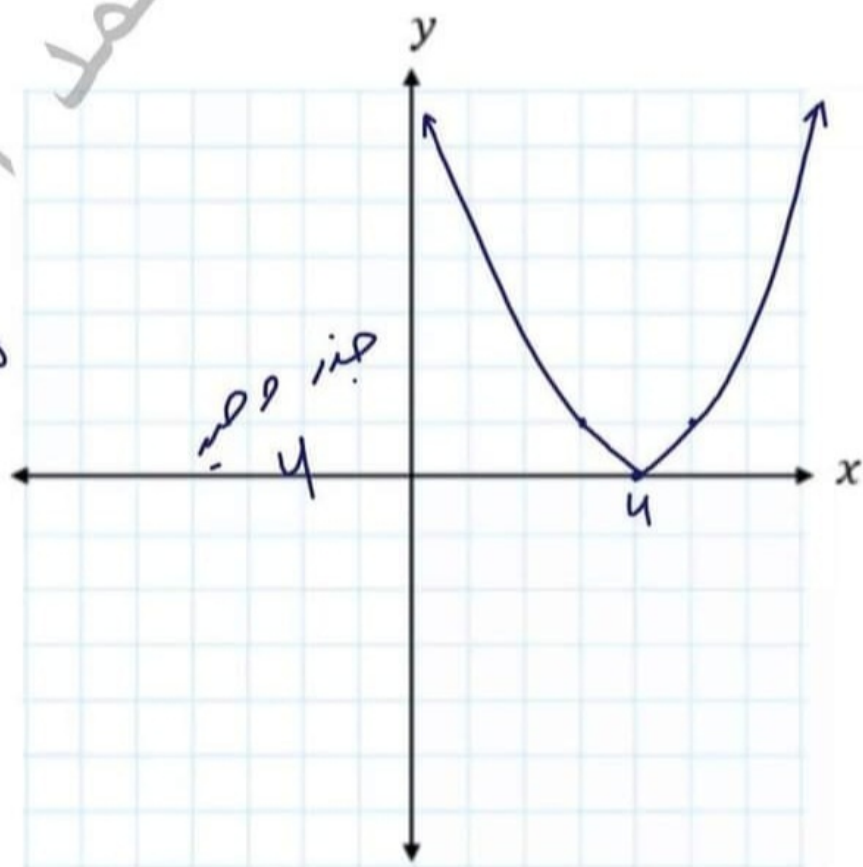
8 $x^2 - 8x + 16 = 0$

$$f(x) = x^2 - 8x + 16$$

$$x = -\frac{b}{2a} = \frac{8}{2} = 4$$

$$f(4) = 16 - 32 + 16 = 0$$

x	3	5
f	1	1



9 $-x^2 - 6x - 9 = 0$

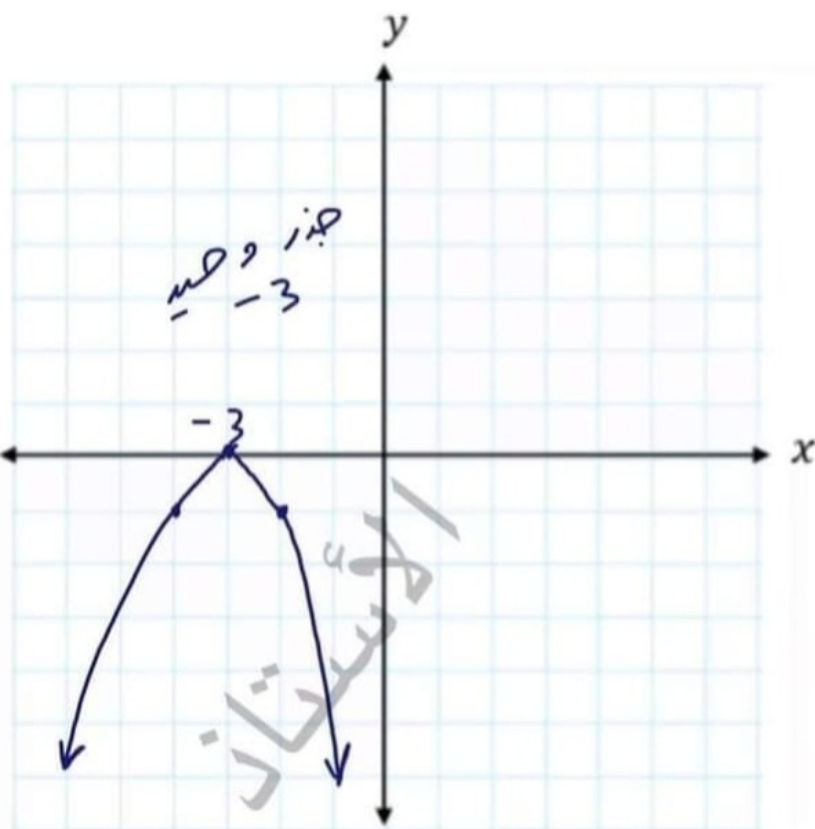
$-x^2 - 6x - 9 = 0$

$f(x) = -x^2 - 6x - 9$

$x = \frac{-b}{2a} = \frac{6}{2(-1)} = -3$

$f(-3) = -9 + 18 - 9 = 0$

x	-2	-4
f	-1	-1



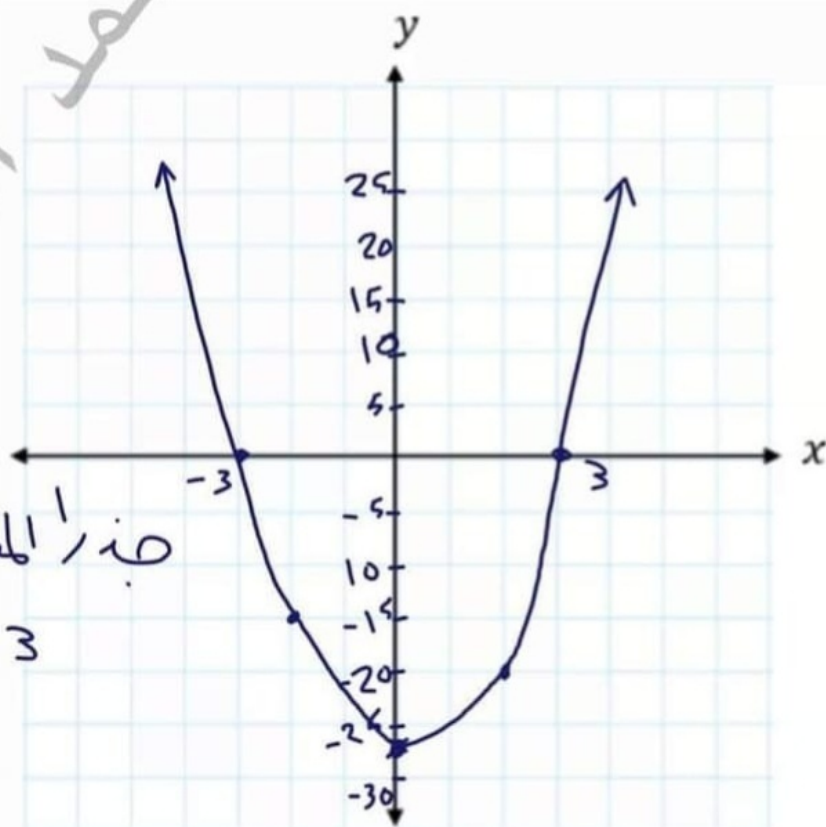
10 $3x^2 - 27 = 0$

$f(x) = 3x^2 - 27$

$x = \frac{-b}{2a} = \frac{0}{6} = 0$

$f(0) = -27$

x	2	-2
f	-15	-15



قمة -27
-3 < 3

$$11 \quad x^2 + 6x = -8$$

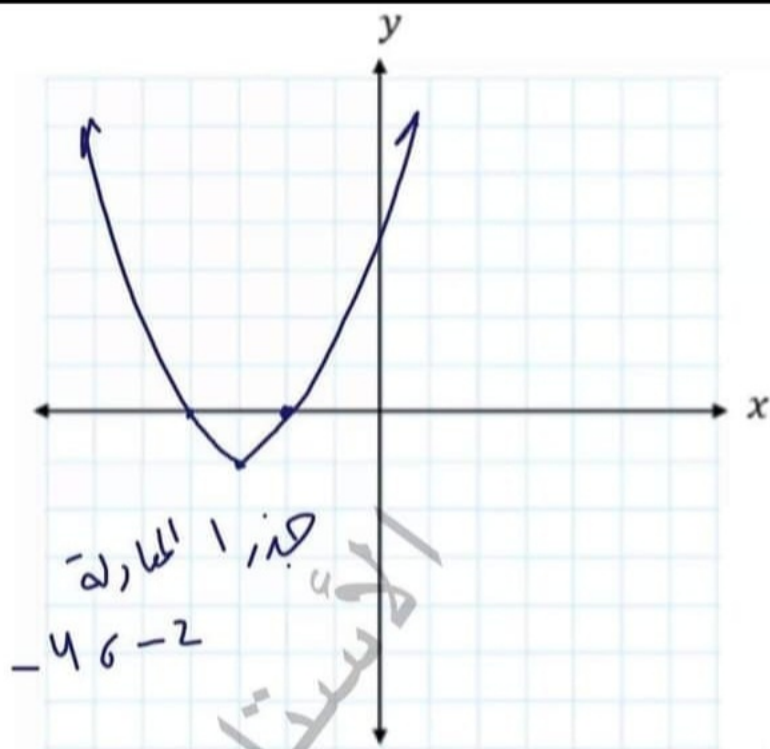
$$x^2 + 6x + 8 = 0$$

$$f(x) = x^2 + 6x + 8$$

$$x = \frac{-6}{2} = -3$$

$$f(-3) = -1$$

x	-2	-4
f	0	0



أحلُّ كُلًّا مِنَ الْمُعَادَلَاتِ الْآتِيَةِ:

$$12 \quad x^2 - 3x - 10 = 0$$

$$(x+2)(x-5) = 0$$

$$x + 2 = 0$$

$$x = -2$$

or

$$x - 5 = 0$$

$$x = 5$$

$$13 \quad x^2 - 8x + 15 = 0$$

$$(x-5)(x-3) = 0$$

$$x - 5 = 0$$

$$x = 5$$

or

$$x - 3 = 0$$

$$x = 3$$

14 $m^2 + 10m + 25 = 0$

$$(m+5)(m+5) = 0$$

$$m + \cancel{5} = 0$$

$$m = -5$$

15 $25t^2 - 49 = 0$

$$+49 \quad +49$$

$$\frac{25t^2}{25} = \frac{49}{25}$$

$$t^2 = \frac{49}{25}$$

$$t = \pm \frac{7}{5}$$

$$t = \frac{7}{5} \text{ or } t = -\frac{7}{5}$$

16 $12x^2 - 16x - 35 = 0$

$$(2x-5)(6x+7) = 0$$

$$2x - \cancel{5} = 0 \text{ or } 6x + \cancel{7} = 0$$

$$\frac{2x}{2} = \frac{5}{2}$$

$$x = \frac{5}{2}$$

$$\frac{6x}{6} = -\frac{7}{6}$$

$$x = -\frac{7}{6}$$

$$axc = 420$$

$$\frac{-30}{12} \quad \frac{+14}{12}$$

$$-\frac{5}{2}x \quad +\frac{7}{6}x$$

$$17 \quad 10x^2 - x = 2$$

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

$$(2x-1)(5x+2)=0$$

$$2x - \cancel{1} = 0 \quad \text{or} \quad 5x + \cancel{2} = 0$$

$$\cancel{2}x = \frac{1}{2}$$

$$x = \frac{1}{2}$$

$$\frac{5x}{5} = \frac{-2}{5}$$

$$x = \frac{-2}{5}$$

$$a \times c = -20$$

$$\begin{array}{r} -5 \\ 10 \end{array} \quad \begin{array}{r} +4 \\ 10 \end{array}$$

$$-\frac{1}{2}x + \frac{2}{5}x$$

$$18 \quad 25x^2 = 10 - 45x$$

$$-10 + 45x \quad -10 + 45x$$

$$25x^2 + 45x - 10 = 0$$

$$\div 5$$

$$5x^2 + 9x - 2 = 0$$

$$(x+2)(5x-1)=0$$

$$x + \cancel{2} = 0 \quad \text{or} \quad 5x - \cancel{1} = 0$$

$$x = -2$$

$$\frac{5x}{5} = \frac{1}{5}$$

$$x = \frac{1}{5}$$

$$\begin{array}{r} +10 \\ 5 \end{array} \quad \begin{array}{r} -1 \\ 5 \end{array}$$

$$+\frac{2}{1x} \quad -\frac{1}{5x}$$

يُمَثِّلُ الاقتران $h(t) = -16t^2 + 8t$ ارتفاع جندبٍ بالقدم بعد t ثانية منقفزه. بعد كم ثانية يصل إلى ارتفاع 1 ft
عن سطح الأرض؟

$$h(t) = 1$$

$$-16t^2 + 8t = 1$$

$$-16t^2 + 8t - 1 = 0$$

$$16t^2 - 8t + 1 = 0$$

$$(4t - 1)^2 = 0$$

$$4t - 1 = 0$$

$$4t = 1$$

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

بعد $\frac{1}{4}$ ثانيةيُبيِّن الشكل الآتي مستطيلاً مساحته 91 m^2 . أجد

أبعاده.

$$A = L \times w$$

$$(2x + 3)(x + 2) = 91$$

$$2x^2 + 4x + 3x + 6 = 91$$

$$2x^2 + 7x - 85 = 0$$

$$(2x + 17)(x - 5) = 0$$

$$2x + 17 = 0 \quad \text{or} \quad x - 5 = 0$$

$$\frac{2x}{2} = -\frac{17}{2}$$

$$x = -\frac{17}{2}$$

$$x = 5$$

الطول: 13 m

العرض: 7 m

 $(x + 2) \text{ m}$ $(2x + 3) \text{ m}$

$$\frac{+17}{2} \quad \frac{-10}{2}$$

$$+\frac{17}{2}x \quad \frac{-5}{1x}$$

أَحْلِلْ كُلَّ مَا يَأْتِي:

$$a \times c = 40$$

$$b = 13$$

$$\begin{array}{cc} \frac{+8}{2} & \frac{+5}{2} \\ \frac{+4}{-1x} & \frac{+5}{2x} \end{array}$$

21 $2x^2 + 13x + 20$

$$(x+4)(2x+5)$$

22 $7y^2 + 16y - 15$

$$(y+3)(7y-5)$$

$$a \times c = -105$$

$$b = 16$$

$$\begin{array}{cc} \frac{+21}{7} & \frac{-5}{7} \\ \frac{+3}{-1y} & \frac{-5}{7y} \end{array}$$

23 $2t^2 - t - 3$

$$(2t-3)(t+1)$$

$$a \times c = -6$$

$$b = -1$$

$$\begin{array}{cc} \frac{-3}{2} & \frac{+2}{2} \\ \frac{-3}{2t} & \frac{+1}{1t} \end{array}$$

24 $8y^2 - 10y - 3$

$$(2y - 3)(4y + 1)$$

$$a \times c = -24$$

$$b = -10$$

$$\frac{-12}{8} \quad \frac{+2}{8}$$

$$-\frac{3}{2y} \quad +\frac{1}{4y}$$

25 $2q^2 - 11q - 21$

$$(q - 7)(2q + 3)$$

$$a \times c = -42$$

$$b = -11$$

$$\frac{-14}{2} \quad \frac{+3}{2}$$

$$-\frac{7}{1q} \quad +\frac{3}{2q}$$

26 $10w^2 + 11w - 8$

$$(5w + 8)(2w - 1)$$

$$a \times c = -80$$

$$b = 11$$

$$\frac{+16}{10} \quad \frac{-5}{10}$$

$$+\frac{8}{5w} \quad -\frac{1}{2w}$$

$$h(t) = 0$$

$$-5t^2 + 30t = 0$$

$$5t(-t + 6) = 0$$

$$\frac{5t}{5} = \frac{0}{5} \quad \text{or} \quad \frac{-t+6}{-6} = \frac{0}{-6}$$

$$t = 0$$

ليس

$$-t = -6$$

$$t = 6$$

يصل الصاروخ إلى الأرض بعد 6 ثوانٍ.

$$27 \quad h(t) = -5t^2 + 30t$$

ارتفاع صاروخ ألعاب نارية بالأمطار بعد t

ثانية من إطلاقه. بعد كم ثانية من إطلاقه

يصل الصاروخ إلى الأرض؟

أحلّ كلّاً من المعادلات الآتية بإكمال المربع، تاركاً الإجابة

بدلالة الجذر التربيعي:

$$28 \quad x^2 + 6x + 7 = 0$$

$$x^2 + 6x + 9 = -7 + 9$$

$$(x + 3)^2 = 2$$

$$x + 3 = \pm \sqrt{2}$$

$$x + 3 = \sqrt{2} \quad \text{or} \quad x + 3 = -\sqrt{2}$$

$$x = \sqrt{2} - 3$$

$$x = -\sqrt{2} - 3$$

$$\left(\frac{6}{2}\right)^2 = 3^2 = 9$$

$$29 \quad x^2 - 3x - 1 = 0$$

$$x^2 - 3x + \frac{9}{4} = 1 + \frac{9}{4}$$

$$\left(x - \frac{3}{2}\right)^2 = \frac{13}{4}$$

$$x - \frac{3}{2} = \pm \frac{\sqrt{13}}{2}$$

$$x - \frac{3}{2} = \frac{\sqrt{13}}{2} + \frac{3}{2}$$

$$x = \frac{\sqrt{13} + 3}{2}$$

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

$$\frac{1 \times 4}{1 \times 4} + \frac{9}{4} = \frac{13}{4}$$

$$\text{or } x - \frac{3}{2} = -\frac{\sqrt{13}}{2} + \frac{3}{2}$$

$$x = \frac{-\sqrt{13} + 3}{2}$$

$$30 \quad x^2 - 9x + 10 = 0$$

$$x^2 - 9x + \frac{81}{4} = -10 + \frac{81}{4}$$

$$\left(x - \frac{9}{2}\right)^2 = \frac{41}{4}$$

$$x - \frac{9}{2} = \pm \frac{\sqrt{41}}{2}$$

$$x - \frac{9}{2} = \frac{\sqrt{41}}{2} + \frac{9}{2} \text{ or } x - \frac{9}{2} = -\frac{\sqrt{41}}{2} + \frac{9}{2}$$

$$x = \frac{\sqrt{41} + 9}{2}$$

$$\left(\frac{-9}{2}\right)^2 = \frac{81}{4}$$

$$-\frac{10 \times 4}{1 \times 4} + \frac{81}{4} = \frac{41}{4}$$

$$x - \frac{9}{2} = -\frac{\sqrt{41}}{2} + \frac{9}{2}$$

$$x = \frac{-\sqrt{41} + 9}{2}$$

$$31 \quad x^2 - 2x - 7 = 0$$

$$x^2 - 2x + 1 = 7 + 1$$

$$(x - 1)^2 = 8$$

$$x - 1 = \pm \sqrt{8}$$

$$x - 1 = \pm 2\sqrt{2}$$

$$x - 1 = 2\sqrt{2}$$

$$x = 2\sqrt{2} + 1$$

$$\text{or } x - 1 = -2\sqrt{2}$$

$$x = -2\sqrt{2} + 1$$

الارض x
الطول $x + 6$

$$A = L \cdot W$$

$$(x + 6)(x) = 216$$

$$x^2 + 6x + 9 = 216 + 9$$

$$(x + 3)^2 = 225$$

$$x + 3 = \pm 15$$

$$x + 3 = 15$$

$$x = 12$$



32 **فناء:** فناء منزل على شكل

مستطيل يزيد طوله على

عرضه بمقدار 6 m، ومساحته

216 m². أجد أبعاده،

مستعملًا إكمال المربع.

$$\left(\frac{6}{2}\right)^2 = 3^2 = 9$$

الارض 12 m

الطول 18 m

$$\text{or } x + 3 = -15$$

$$x = -18$$

منحل

أحلّ كُلًّا مِنَ الْمُعَادَلَاتِ الْآتِيَةِ بِإِكْمَالِ الْمُرَبَّعِ، مُقَرَّبًا إِيَّابَتِي

لأَقْرَبِ جُزْءٍ مِنْ عَشْرَةٍ (إِنْ لَزِمَ):

33 $x^2 - 10x = 24$

$$x^2 - 10x + 25 = 24 + 25$$

$$(x - 5)^2 = 49$$

$$x - 5 = \pm 7$$

$$\begin{array}{r} x - 5 = 7 \\ +5 \quad +5 \end{array}$$

$$x = 12$$

$$\text{or } \begin{array}{r} x - 5 = -7 \\ +5 \quad +5 \end{array}$$

$$x = -2$$

34 $x^2 + x - 1 = 0$

$$x^2 + x + \frac{1}{4} = 1 + \frac{1}{4}$$

$$\left(x + \frac{1}{2}\right)^2 = \frac{5}{4}$$

$$x + \frac{1}{2} = \pm \frac{\sqrt{5}}{2}$$

$$\begin{array}{r} x + \frac{1}{2} = \frac{\sqrt{5}}{2} \\ -\frac{1}{2} \quad -\frac{1}{2} \end{array}$$

$$x = \frac{\sqrt{5} - 1}{2}$$

or

$$\begin{array}{r} x + \frac{1}{2} = -\frac{\sqrt{5}}{2} \\ -\frac{1}{2} \quad -\frac{1}{2} \end{array}$$

$$x = \frac{-\sqrt{5} - 1}{2}$$

$$\left(-\frac{10}{2}\right)^2 = (-5)^2 = 25$$

$$\left(\frac{1}{2}\right)^2 = \frac{1}{4}$$

$$35 \quad \frac{2x^2}{2} + \frac{20x}{2} - \frac{10}{2} = \frac{0}{2}$$

$$x^2 + 10x - 5 = 0$$

$$\left(\frac{10}{2}\right)^2 = 5^2 = 25$$

$$x^2 + 10x + 25 = 5 + 25$$

$$(x + 5)^2 = 30$$

$$x + 5 = \pm \sqrt{30}$$

$$x + 5 = \sqrt{30} \quad \text{or}$$

$$-5 \quad -5$$

$$x = \sqrt{30} - 5$$

$$x + 5 = -\sqrt{30}$$

$$-5 \quad -5$$

$$x = -\sqrt{30} - 5$$

$$36 \quad \frac{3x^2}{3} - \frac{6x}{3} - \frac{9}{3} = \frac{0}{3}$$

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

$$\left(\frac{-2}{2}\right)^2 = (-1)^2 = 1$$

$$x^2 - 2x + 1 = 3 + 1$$

$$(x - 1)^2 = 4$$

$$x - 1 = \pm 2$$

$$x - 1 = 2 \quad \text{or} \quad x - 1 = -2$$

$$+1 \quad +1 \quad +1 \quad +1$$

$$x = 3$$

$$x = -1$$

$$35 \quad \frac{2x^2}{2} + \frac{20x}{2} - \frac{10}{2} = \frac{0}{2}$$

$$x^2 + 10x - 5 = 5$$

$$\left(\frac{10}{2}\right)^2 = 5^2 = 25$$

$$x^2 + 10x + 25 = 5 + 25$$

$$(x + 5)^2 = 30$$

$$x + 5 = \pm \sqrt{30}$$

$$x + 5 = \sqrt{30} \quad \text{or} \quad x + 5 = -\sqrt{30}$$

$$\begin{array}{cc} -5 & -5 \end{array}$$

$$x = \sqrt{30} - 5$$

$$x = -\sqrt{30} - 5$$

$$36 \quad \frac{3x^2}{3} - \frac{6x}{3} - \frac{9}{3} = \frac{0}{3}$$

$$x^2 - 2x - 3 = 3$$

$$\left(\frac{-2}{2}\right)^2 = (-1)^2 = 1$$

$$x^2 - 2x + 1 = 3 + 1$$

$$(x - 1)^2 = 4$$

$$x - 1 = \pm 2$$

$$x - 1 = 2 \quad \text{or} \quad x - 1 = -2$$

$$\begin{array}{cc} +1 & +1 \end{array}$$

$$x = 3$$

$$x = -1$$

أحلُّ كُلِّ مِنَ الْمُعادَلاتِ الآتيةَ بالقانونِ العامِّ، مُقَرَّبًا إجابتي

لأقربِ جُزءٍ مِنْ عَشْرَةٍ (إنْ لَزِمَ):

37 $5x^2 + 2x - 1 = 0$ $a = 5$ $b = 2$ $c = -1$

$$\Delta = b^2 - 4ac = (2)^2 - 4(5)(-1) = 4 + 20 = 24$$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-2 \pm \sqrt{24}}{10}$$

$$x = \frac{-2 + \sqrt{24}}{10} \approx 0.3 \quad \text{or} \quad x = \frac{-2 - \sqrt{24}}{10} \approx -0.7$$

38 $7x^2 + 12x = -2$
 $\quad \quad \quad +2 \quad +2$

$$7x^2 + 12x + 2 = 0 \quad a = 7 \quad b = 12 \quad c = 2$$

$$\Delta = b^2 - 4ac = (12)^2 - 4(7)(2) = 144 - 56 = 88$$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-12 \pm \sqrt{88}}{14}$$

$$x = \frac{-12 + \sqrt{88}}{14} \approx -0.2 \quad \text{or} \quad x = \frac{-12 - \sqrt{88}}{14} \approx -1.5$$

39 $3x^2 + 11x = -9$

$+9 +9$

$3x^2 + 11x + 9 = 0$

$a=3 \quad b=11 \quad c=9$

$\Delta = b^2 - 4ac = (11)^2 - 4(3)(9) = 121 - 108 = 13$

$x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-11 \pm \sqrt{13}}{6}$

$x = \frac{-11 + \sqrt{13}}{6} \approx -1.2 \quad \text{or} \quad x = \frac{-11 - \sqrt{13}}{6} \approx -2.4$

أحلُّ كلَّ مُعادلةٍ ممَّا يأتي باستعمالِ أيِّ طريقةٍ، مُبرِّراً سببَ

اختيارِ الطريقةِ:

(التحليل)

40 $2x^2 + 7x = 0$

$x(2x + 7) = 0$

$x = 0$

or

$2x + 7 = 0$
 $\quad \quad \quad -7$

$\frac{2x}{2} = -\frac{7}{2}$

$x = -\frac{7}{2}$

41 $4x^2 + 8x - 5 = 0$

التحليل

$a \times c = -20$

$b = 8$

$\frac{+10}{4} \quad \frac{-2}{4}$

$+\frac{5}{2x} \quad -\frac{1}{2x}$

$(2x+5)(2x-1)=0$

$\cancel{2x} + \cancel{5} = 0 \quad \text{or} \quad \cancel{2x} - \cancel{1} = 0$
 $\begin{matrix} -5 & -5 \\ +1 & +1 \end{matrix}$

$\frac{\cancel{2x}}{2} = \frac{-5}{2}$

$x = -\frac{5}{2}$

$\frac{\cancel{2x}}{2} = \frac{1}{2}$

$x = \frac{1}{2}$

42 $x^2 - 2x = 5$

(الكمال مربع)

$x^2 - 2x + 1 = 5 + 1$

$\left(-\frac{2}{2}\right)^2 = (-1)^2 = 1$

$(x-1)^2 = 6$

$x-1 = \pm\sqrt{6}$

$\cancel{x} - \cancel{1} = \sqrt{6}$
 $\begin{matrix} +1 & +1 \end{matrix}$

$x = \sqrt{6} + 1$

or

$\cancel{x} - \cancel{1} = -\sqrt{6}$
 $\begin{matrix} +1 & +1 \end{matrix}$

$x = -\sqrt{6} + 1$

$$43 \quad 3x^4 = 27x^2$$

$$-27x^2 \quad -27x^2$$

$$3x^4 - 27x^2 = 0$$

$$3x^2(x^2 - 9) = 0$$

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

$$3x^2 = 0$$

$$\text{or } x+3=0$$

$$\quad \quad \quad -3 \quad -3$$

$$\text{or } x-3=0$$

$$\quad \quad \quad +3 \quad +3$$

$$x=0$$

$$x=-3$$

$$x=3$$

$$44 \quad x^3 + x^2 = 4x + 4$$

$$-4x-4 \quad -4x-4$$

$$x^3 + x^2 - 4x - 4 = 0$$

$$x^2(x+1) - 4(x+1) = 0$$

$$(x+1)(x^2 - 4) = 0$$

$$(x+1)(x+2)(x-2) = 0$$

$$x+1=0 \quad \text{or} \quad x+2=0 \quad \text{or} \quad x-2=0$$

$$\quad \quad \quad +1 \quad -1 \quad \quad \quad +2 \quad -2 \quad \quad \quad +2 \quad +2$$

$$x=-1$$

$$x=-2$$

$$x=2$$

$$45 \quad 2x^3 + 3x^2 = 8x + 12$$

$$-8x - 12 \quad -8x - 12$$

$$2x^3 + 3x^2 - 8x - 12 = 0$$

$$x^2(2x+3) - 4(2x+3) = 0$$

$$(2x+3)(x^2-4) = 0$$

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

$$2x+3=0$$

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

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

$$\text{or } x+2=0$$

$$\frac{x}{1} = \frac{-2}{-1}$$

$$x = -2$$

$$\text{or } x-2=0$$

$$\frac{x}{1} = \frac{2}{1}$$

$$x = 2$$

$$46 \quad x^4 + 3x^2 - 10 = 0$$

$$(x^2-2)(x^2+5) = 0$$

$$x^2-2=0$$

$$\frac{x^2}{1} = \frac{2}{1}$$

$$x^2 = 2$$

$$x = \pm\sqrt{2}$$

$$-\sqrt{2}, \sqrt{2}$$

$$\text{or } x^2+5=0$$

$$\frac{x^2}{1} = \frac{-5}{-1}$$

$$x^2 = -5$$

$$\text{No solution}$$

$$5x^2 + c = 10$$

47 أي قيمة c الآتية تجعل المعادلة $5x^2 + c = 10$ دون حل؟

a) 12

b) 5

c) 9

d) 1

دون حل

$$10 - c < 0$$

$$10 < c$$

$$axc = -273$$

$$\frac{+39}{13} \quad \frac{-7}{13}$$

$$\frac{+3}{1x} \quad \frac{-7}{13x}$$

$$(x + 3)(13x - 7)$$

48 أي مما يأتي يُعدّ عاملاً لثلاثي الحدود $13x^2 + 32x - 21$ ؟

a) $13x + 3$

b) $13x + 7$

c) $13x + 21$

d) $13x - 7$

49 أي مما يأتي يجعل المقدار $x^2 + 14x$ عند إضافته مُربَّعًا كاملاً؟

$$\left(\frac{b}{2}\right)^2 = \left(\frac{14}{2}\right)^2 \\ = 7^2 = 49$$

a) 7

b) 49

c) 14

d) 196

50 عدد الحلول الحقيقية للمعادلة $x^2 + 7x + 11 = 0$ هو:

a) 0

b) 1

c) 2

d) 3

$$x^2 + 7x + 11 = 0$$

$$a = 1 \quad b = 7 \quad c = 11$$

$$\Delta = b^2 - 4ac = (7)^2 - 4(1)(11) = 49 - 44 = 5$$

$$\text{نظر } \Delta > 0$$