

Workout

Question 1: Factorise each of the following

- (a) $x^2 + 7x + 12$ (b) $x^2 + 6x + 8$ (c) $x^2 + 5x + 6$ (d) $x^2 + 8x + 7$
(e) $x^2 + 4x + 4$ (f) $x^2 + 8x + 15$ (g) $x^2 + 6x + 9$ (h) $x^2 + 11x + 28$
(i) $x^2 + 10x + 25$ (j) $x^2 + 12x + 20$ (k) $x^2 + 25x + 24$ (l) $x^2 + 11x + 24$
(m) $x^2 + 9x + 14$ (n) $x^2 + 23x + 60$ (o) $x^2 + 29x + 100$ (p) $x^2 + 20x + 51$

Question 2: Factorise each of the following

- (a) $x^2 + x - 12$ (b) $x^2 + 5x - 6$ (c) $x^2 + 3x - 10$ (d) $x^2 + 3x - 4$
(e) $x^2 + 2x - 48$ (f) $x^2 + 4x - 32$ (g) $x^2 + 2x - 35$ (h) $x^2 + 8x - 33$

Question 3: Factorise each of the following

- (a) $x^2 - 3x - 10$ (b) $x^2 - x - 20$ (c) $x^2 - 6x - 27$ (d) $x^2 - 2x - 3$
(e) $x^2 - x - 12$ (f) $x^2 - 4x - 12$ (g) $x^2 - 4x - 21$ (h) $x^2 - 6x - 55$

Question 4: Factorise each of the following

- (a) $x^2 - 6x + 9$ (b) $x^2 - 9x + 20$ (c) $x^2 - 9x + 14$ (d) $x^2 - 13x + 22$
(e) $x^2 - 9x + 8$ (f) $x^2 - 12x + 32$ (g) $x^2 - 15x + 36$ (h) $x^2 - 14x + 48$

Question 5: Factorise each of the following

- (a) $x^2 - 9x + 8$ (b) $x^2 + 24x + 23$ (c) $x^2 - 5x - 14$ (d) $x^2 - 7x + 12$
(e) $x^2 + 12x + 36$ (f) $x^2 - 2x - 63$ (g) $x^2 + 14x + 24$ (h) $x^2 + 17x + 60$
(i) $x^2 - 11x + 30$ (j) $x^2 - 4x - 32$ (k) $x^2 - 2x - 63$ (l) $x^2 - 16x - 17$
(m) $x^2 - 11x + 18$ (n) $x^2 - 13x + 22$ (o) $x^2 + 18x + 56$ (p) $x^2 - 21x + 110$
(q) $x^2 - 16x + 64$ (r) $x^2 + 22x + 121$ (s) $x^2 - x - 72$ (t) $x^2 - 3x - 18$
(u) $x^2 - 4x - 45$ (v) $x^2 - 16x + 63$

Question 6: Factorise each of the following

(a) $x^2 + 8x - 105$ (b) $x^2 - 18x - 88$ (c) $x^2 - 75x + 350$ (d) $x^2 + 22x + 96$

(e) $x^2 + 25x + 154$ (f) $x^2 - 55x - 300$ (g) $x^2 - 29x + 180$ (h) $x^2 - x - 210$

Apply

Question 1: A quadratic expression, $x^2 + ax + 20$, can be factorised.
Find all possible values for a.
a can be positive or negative.

Question 2: A quadratic expression, $x^2 + bx + 16$, can be factorised.
Find all possible values for b.
b can be positive or negative.

Question 3: A quadratic expression, $x^2 - 6x + c$, can be factorised.
Find three possible values for c.

Question 4: Andrew has completed his homework on factorising quadratics.
Can you spot any mistakes?

Factorise $x^2 + x - 6$

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

Factorise $x^2 + 10x + 9$

$$(x + 3)(x + 3)$$

Factorise $x^2 - 7x + 12$

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

Factorise $x^2 + 8x + 16$

$$(x + 4)(x + 4)$$