

SOLVING QUADRATIC EQUATIONS BY FACTORING - EXERCISES

1 Solve each quadratic equation:

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

(b) $x^2 + 5x + 6 = 0$

(c) $x^2 - 3x - 10 = 0$

(d) $x^2 - x - 30 = 0$

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

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

(g) $2x^2 - x - 6 = 0$

(h) $5x^2 + 13x - 6 = 0$

(i) $15x^2 + x - 2 = 0$

(j) $3x^2 + 22x - 16 = 0$

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

(l) $3x^2 + 12x = 0$

(m) $10x^2 - 2x = 0$

(n) $28x^2 + 12x = 0$

(o) $x^2 + 8x + 16 = 0$

(p) $x^2 - 18x + 81 = 0$

(q) $x^2 + 20x + 100 = 0$

(r) $x^2 - 14x + 49 = 0$

(s) $4x^2 + 20x + 25 = 0$

(t) $9x^2 - 48x + 64 = 0$

(u) $x^2 - 25 = 0$

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

(w) $16x^2 - 49 = 0$

(x) $100x^2 - 81 = 0$

2 Solve each equation:

(a) $x^2 = 100 - 21x$

(b) $5x^2 = 7x + 6$

(c) $12x^2 + 11x = 5$

(d) $81 = -16x^2 - 72x$

(e) $100x^2 = 1$

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

(g) $x^3 = 10x^2 + 39x$

(h) $7x^3 + 47x^2 - 14x = 0$

(i) $8x^3 + 25x = 30x^2$

(j) $81x^3 + 100x = 180x^2$

*k) $121x = 36x^3$

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

DO EXAMPLES UNTIL YOU FACTOR GREATEST COMMON FACTOR FIRST.

SOLVING QUADRATIC EQUATIONS BY FACTORING - EXERCISES

- (2) (m) $x(x+8) = -15$ (n) $(4x-1)(2x-3) = -2$
 (o) $(x+3)^2 - 5(x+3) + 6 = 0$ (p) $10x^4 - 90x^2 = 0$
 (q) $x(4x+5) = (x+1)^2 + 17$ (r) $x^2 + (x+1)^2 = 85$
 (s) $x^5 = 10x^3 - 9x$ (t) $2x^3 - x^2 - 8x + 4 = 0$
 (u) $3x^3 - 11x^2 = 3x - 11$ (v) $x^4 - 25x^2 + 144 = 0$
 (w) $(3x+4)(x-3) = (x-6)(x+2)$ (x) $(2x+3)(2x^2 - 5x - 3) = 0$
 (y) $(x+3)^2 = (2x-1)^2$ (z) $x^2 + (x+1)^2 = (x+2)^2$

- (3) If 2 is one solution of $x^2 - 5x + k = 0$, find the value of k .
 (4) If -1 is one solution of $x^2 + kx + 5 = 0$, find the other one.
 (5) If 2 is one solution of $kx^2 - 2x - 3k = 0$, find the other one.
 (6) Solve for x in terms of k : $k^2x^2 - 3kx - 10 = 0$.
 (7) The sum of the squares of 2 consecutive integers is 113. Find them.
 (8) The sum of the squares of 2 consecutive even integers is 100. Find them.
 (9) The sum of the squares of 2 consecutive odd integers is 202. Find them.
 (10) The sum of the squares of 3 consecutive integers is 110. Find them.
 (11) The product of 2 consecutive integers is 11 more than their sum.
 Find them.
 (12) The sum of a number and its square is 132. Find the number(s).
 (13) The square of a number plus triple itself is 70. Find the number(s).
 (14) The sum of an integer and its square is 9 times the next consecutive integer. Find the integer(s).

SOLVING QUADRATIC EQUATIONS BY FACTORING - EXERCISES (ANSWERS)

- 1 (a) 1,3 (b) -2,-3 (c) -2,5 (d) -5,6 (e) $1\frac{2}{3}$ (f) $-\frac{1}{3}, \frac{2}{3}$ (g) $2, -\frac{3}{2}$ (h) $\frac{2}{5}, -3$
 (i) $\frac{1}{3}, -\frac{2}{5}$ (j) $-8, \frac{2}{3}$ (k) 0,5 (l) 0,-4 (m) $0, \frac{1}{5}$ (n) $0, -\frac{3}{7}$ (o) -4 (p) 9 (q) -10
 (r) 7 (s) $-\frac{5}{2}$ (t) $\frac{8}{3}$ (u) ± 5 (v) $\pm \frac{3}{2}$ (w) ± 7 (x) $\pm \frac{7}{10}$

- 2 (a) -25,4 (b) $2, -\frac{3}{5}$ (c) $\frac{1}{3}, -\frac{5}{4}$ (d) $-\frac{9}{4}$ (e) $\pm \frac{1}{10}$ (f) 0,4 (g) 0,-3,13 (h) 0,-7, $\frac{2}{7}$
 (i) $0, \frac{5}{2}, \frac{5}{4}$ (j) $0, \frac{10}{9}$ (k) $0, \pm \frac{1}{6}$ (l) -1,-5 (m) -3,-5 (n) $\frac{1}{2}, \frac{5}{4}$ (o) 0,-1
 (p) 0, ± 3 (q) -3,2 (r) -7,6 (s) 0, $\pm 1, \pm 3$ (t) $\frac{1}{2}, \pm 2$ (u) $\frac{1}{3}, \pm 1$ (v) $\pm 3, \pm 4$
 (w) $0, \frac{1}{2}$ (x) $-\frac{3}{2}, -\frac{1}{2}, 3$ (y) $-\frac{2}{3}, 4$ (z) -1,3

- 3 (a) $k=6$ (b) -5 (c) $-\frac{3}{2}$ (d) $-\frac{2}{3}$ (e) $\frac{5}{2}$ (f) 7 and 8 or -8 and -7
 (g) 6 and 8 or -8 and -6 (h) 9 and 11 or -11 and -9 (i) 5,6,7 or -7,-6,-5
 (j) 4 and 5 or -3 and -2 (k) -12 or 11 (l) -10 or 7 (m) 9 or -1
 (n) 9,11,13 or -3,-1,1 (o) 10,11,12 or -12,-11,-10 (p) 0 or $\frac{2}{3}$ (q) 5 and 7
 (r) 7 and 13 (s) 5 and 9 (t) 45 yrs. and 9 yrs. (u) 12 yrs. and 17 yrs.

- 23 (a) 3 cm (b) 8 m (c) 9 cm (d) $x=8$ (e) 3 ft. (f) 2 cm (g) 5 m
 (h) length 16 ft., width 11 ft. (i) length 15 cm, width 5 cm (j) 14 m
 (k) length 6 m, width 2 m (l) 2.5 cm (m) 3 m (n) 6 cm and 8 cm
 (o) 5 cm by 15 cm (p) 10 cm by 16 cm