

Quadratic Equation Problems — Rational Answers

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Write complete and correct steps for all problems. Do not use a calculator. Work the odd problems, if you have any trouble whatsoever also do the even problems. Work all the review problems.

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

(2) $x^2 - x - 42 = 0$

(3) $r^2 - 7r - 8 = 0$

(4) $r^2 - 6r + 8 = 0$

(5) $s^2 - 9s + 8 = 0$

(6) $t^2 - 13t + 12 = 0$

(7) $6 + y - y^2 = 0$

(8) $2 - x - x^2 = 0$

(9) $a^2 - 3a = 18$

(10) $b^2 + 3b = 10$

(11) $x^2 = 5x$

(12) $2x^2 = x$

(13) $4t^2 = t + 3$

(14) $5s^2 = 2s + 3$

(15) $(2y - 3)(3y - 6) = 0$

(16) $(4x - 5)(2x + 1) = 0$

(17) $b(2b - 3) = 0$

(18) $a(a - 2) = 0$

(19) $x^2 = 49$

(20) $y^2 = 64$

(21) $4x^2 - 4x - 24 = 0$

(22) $6x^2 - 8x - 8 = 0$

(23) $(b + 2)^2 = 4$

(24) $(a - 5)^2 = 9$

(25) $y^2 + 8y + 15 = 0$

(26) $x^2 + 10x + 21 = 0$

(27) $3x^2 - 3x = 2x^2 + 18$

(28) $4y^2 - 11y = 10 - 2y^2$

(29) $(x + 2)(x - 3) = 6$

(30) $(2z - 1)(2z + 3) = 5$

(31) $3x(2x - 5)(8 + 5x) = 0$

(32) $2x(3x + 7)(2 - 9x) = 0$

(33) $(2a + 1)^2 - 25 = 0$

(34) $(3b - 2)^2 - 4 = 0$

(35) $x^2 = 2(x + 4)$

(36) $4x^2 = 2(x + 1)$

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

(38) $(y - 2)^2 = (y + 2)^2$

(39) $-6a^2 + a + 15 = 0$

(40) $-6d^2 + 13d - 6 = 0$

(41) $9y^2 - 4 = 0$

(42) $81 - 25x^2 = 0$

(43) $3x^2 - 5x = 2(x - 1)$

(44) $10x^2 + 2x = 3(x + 1)$

$$(45) (z - 3)(z - 2) = 2z$$

$$(46) (2x - 1)(3x - 2) = 1$$

$$(47) (3y - 5)(2y + 1) = (2y + 1)^2$$

$$(48) (2x - 1)(x - 2) = (x - 2)(x + 3)$$

_____ The following are review problems. Work all of them. _____

$$(49) a^2 + 10a + 25 = 0$$

$$(50) 4s^2 = 81$$

$$(51) 2t(3t - 1) = 4$$

$$(52) 8x^3 = 18x$$

$$(53) (3z - 2)^2 = 36$$

$$(54) 15b^2 + 19b + 6 = 0$$

$$(55) 2x(4x + 5) = 3$$

$$(56) 1 - x - 6x^2 = 0$$

$$(57) b(2b - 3) = 4b$$

$$(58) 4(y - 4)^2 = (2y - 3)^2$$

$$(59) (5z - 1)^2 - 9 = 0$$

$$(60) (4x - 1)(3x - 1) = (3x - 1)(2x + 3)$$

- Answers: (1) $\{-5, 6\}$ (2) $\{-6, 7\}$ (3) $\{-1, 8\}$ (4) $\{2, 4\}$ (5) $\{1, 8\}$
- (6) $\{1, 12\}$ (7) $\{-2, 3\}$ (8) $\{-2, 1\}$ (9) $\{-3, 6\}$ (10) $\{-5, 2\}$
- (11) $\{0, 5\}$ (12) $\{0, \frac{1}{2}\}$ (13) $\{-\frac{3}{4}, 1\}$ (14) $\{-\frac{3}{5}, 1\}$ (15) $\{\frac{3}{2}, 2\}$
- (16) $\{-\frac{1}{2}, \frac{5}{4}\}$ (17) $\{0, \frac{3}{2}\}$ (18) $\{0, 2\}$ (19) $\{-7, 7\}$ (20) $\{-8, 8\}$
- (21) $\{-2, 3\}$ (22) $\{-\frac{2}{3}, 2\}$ (23) $\{-4, 0\}$ (24) $\{2, 8\}$ (25) $\{-5, -3\}$
- (26) $\{-7, -3\}$ (27) $\{-3, 6\}$ (28) $\{-\frac{2}{3}, \frac{5}{2}\}$ (29) $\{-3, 4\}$ (30) $\{-2, 1\}$
- (31) $\{-\frac{8}{5}, 0, \frac{5}{2}\}$ (32) $\{-\frac{7}{3}, 0, \frac{2}{9}\}$ (33) $\{-3, 2\}$ (34) $\{0, \frac{4}{3}\}$ (35) $\{-2, 4\}$
- (36) $\{-\frac{1}{2}, 1\}$ (37) $x = \frac{1}{2}$ (38) $y = 0$ (39) $\{-\frac{3}{2}, \frac{5}{3}\}$ (40) $\{\frac{2}{3}, \frac{3}{2}\}$
- (41) $\{-\frac{2}{3}, \frac{2}{3}\}$ (42) $\{-\frac{9}{5}, \frac{9}{5}\}$ (43) $\{\frac{1}{3}, 2\}$ (44) $\{-\frac{1}{2}, \frac{3}{5}\}$ (45) $\{1, 6\}$
- (46) $\{\frac{1}{6}, 1\}$ (47) $\{-\frac{1}{2}, 6\}$ (48) $\{2, 4\}$ (49) $\{-5, -5\}$ (50) $\{-\frac{9}{2}, \frac{9}{2}\}$
- (51) $\{-\frac{2}{3}, 1\}$ (52) $\{-\frac{3}{2}, 0, \frac{3}{2}\}$ (53) $\{-\frac{4}{3}, \frac{8}{3}\}$ (54) $\{-\frac{2}{3}, -\frac{3}{5}\}$
- (55) $\{-\frac{3}{2}, \frac{1}{4}\}$ (56) $\{-\frac{1}{2}, \frac{1}{3}\}$ (57) $\{0, \frac{7}{2}\}$ (58) $y = \frac{11}{4}$ (59) $\{-\frac{2}{5}, \frac{4}{5}\}$
- (60) $\{\frac{1}{3}, 2\}$