

Ch. 6.1/6.2 Practice - Solving Quadratic Equations

Date _____ Period _____

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Solve each equation by factoring. Note: a=1 can use magic number shortcut.

1) $n^2 - 10n = -21$

2) $0 = -n^2 + 3n + 4$

3) $x^2 = -7x - 10$

4) $0 = -p^2 - 24 + 11p$

5) $-21 - 4k = -k^2$

6) $a^2 + 20 = -9a$

7) $0 = -k^2 - 56 + 15k$

8) $-13x = -x^2 - 42$

Solve each equation by factoring. Since a is not 1 must factor by grouping.

9) $3x^2 - 8 = 5x$

10) $0 = -14b^2 + 41b - 15$

11) $7r^2 = 4 - 12r$

12) $6m^2 + 37m = -35$

13) $0 = 24 - 26n - 5n^2$

14) $7n^2 - 43n = -6$

15) $40 + 43x = -7x^2$

16) $5v^2 - 29v = 6$

Solve each equation by factoring. Pull out GCF. Combine like terms.

17) $42m^2 + 174m = 180$

18) $-24 + 18n = -60n^2$

19) $20 - 40b = -15b^2$

20) $116v^2 + 136v - 336 = -4v^2$

21) $67n^2 - 24n - 8 = 4n^2 + 4$

22) $64x^2 - 449x + 56 = 7x$

23) $24r^2 - 102r + 48 = 8r^2 + 2r$

24) $19x^2 - 92x + 84 = -2x^2 - x$

Solve each equation (exact values) by taking square roots i.e. extracting the roots. Note b = 0. Checking your solutions, especially the complex solutions, is excellent algebra practice.

25) $10k^2 - 3 = 517$

26) $9k^2 + 4 = 13$

27) $2a^2 - 6 = -9$

28) $8v^2 - 9 = -44$

29) $9p^2 + 7 = 16$

30) $7x^2 - 5 = -73$

31) $64x^2 + 1 = 26$

32) $6x^2 + 3 = 57$

33) $5n^2 - 2 = 93$

34) $5n^2 + 6 = -61$

35) $3n^2 - 10 = 290$

36) $5x^2 - 3 = 417$

Solve each equation by completing the square.

37) $6x^2 - 12x - 51 = -3$

38) $r^2 + 16r + 86 = -3$

39) $5n^2 - 20n + 24 = 9$

40) $6m^2 - 12m - 87 = 3$

41) $4x^2 - x + 22 = -7$

42) $5v^2 + 16v + 24 = 5$

43) $b^2 + 13b + 5 = -7$

44) $x^2 - 11x + 81 = -2$

45) $k^2 - 4k + 14 = 2$

46) $3p^2 - 12p + 89 = 6$

47) $x^2 - 6x + 47 = -10$

48) $a^2 - 16a + 92 = -7$

49) $44 = 16n - 2n^2$

50) $m^2 - 8m = 77$

51) $-84 = -2x^2 + 2x$

52) $2r^2 + 10r = -8$

53) $11b^2 - 53 = -2 + b^2 + 19b$

54) $5n^2 + 10n + 35 = -3n - 10 + 4n^2$

Solve each equation by completing the square (exact answers).

55) $-80 + 2n = -n^2$

56) $27 = -a^2 + 12a$

Answers to Ch. 6.1/6.2 Practice - Solving Quadratic Equations (ID: 1)

- 1) $\{3, 7\}$
- 5) $\{7, -3\}$
- 9) $\left\{\frac{8}{3}, -1\right\}$
- 13) $\left\{\frac{4}{5}, -6\right\}$
- 17) $\left\{\frac{6}{7}, -5\right\}$
- 21) $\left\{\frac{2}{3}, -\frac{2}{7}\right\}$
- 25) $\{2\sqrt{13}, -2\sqrt{13}\}$
- 29) $\{1, -1\}$
- 32) $\{3, -3\}$
- 35) $\{10, -10\}$
- 39) $\{3, 1\}$
- 42) $\left\{\frac{-8 + i\sqrt{31}}{5}, \frac{-8 - i\sqrt{31}}{5}\right\}$
- 45) $\{2 + 2i\sqrt{2}, 2 - 2i\sqrt{2}\}$
- 48) $\{8 + i\sqrt{35}, 8 - i\sqrt{35}\}$
- 51) $\{7, -6\}$
- 54) $\left\{\frac{-13 + i\sqrt{11}}{2}, \frac{-13 - i\sqrt{11}}{2}\right\}$
- 2) $\{-1, 4\}$
- 6) $\{-5, -4\}$
- 10) $\left\{\frac{3}{7}, \frac{5}{2}\right\}$
- 14) $\left\{\frac{1}{7}, 6\right\}$
- 18) $\left\{-\frac{4}{5}, \frac{1}{2}\right\}$
- 22) $\left\{\frac{1}{8}, 7\right\}$
- 26) $\{1, -1\}$
- 30) $\left\{\frac{2i\sqrt{119}}{7}, -\frac{2i\sqrt{119}}{7}\right\}$
- 33) $\{\sqrt{19}, -\sqrt{19}\}$
- 36) $\{2\sqrt{21}, -2\sqrt{21}\}$
- 40) $\{5, -3\}$
- 43) $\{-1, -12\}$
- 46) $\left\{\frac{6 + i\sqrt{213}}{3}, \frac{6 - i\sqrt{213}}{3}\right\}$
- 49) $\{4 + i\sqrt{6}, 4 - i\sqrt{6}\}$
- 52) $\{-1, -4\}$
- 3) $\{-5, -2\}$
- 7) $\{7, 8\}$
- 11) $\left\{\frac{2}{7}, -2\right\}$
- 15) $\left\{-\frac{8}{7}, -5\right\}$
- 19) $\left\{\frac{2}{3}, 2\right\}$
- 23) $\left\{\frac{1}{2}, 6\right\}$
- 27) $\left\{\frac{i\sqrt{6}}{2}, -\frac{i\sqrt{6}}{2}\right\}$
- 31) $\left\{\frac{5}{8}, -\frac{5}{8}\right\}$
- 34) $\left\{\frac{i\sqrt{335}}{5}, -\frac{i\sqrt{335}}{5}\right\}$
- 37) $\{4, -2\}$
- 41) $\left\{\frac{1 + i\sqrt{463}}{8}, \frac{1 - i\sqrt{463}}{8}\right\}$
- 44) $\left\{\frac{11 + i\sqrt{211}}{2}, \frac{11 - i\sqrt{211}}{2}\right\}$
- 47) $\{3 + 4i\sqrt{3}, 3 - 4i\sqrt{3}\}$
- 50) $\{4 + \sqrt{93}, 4 - \sqrt{93}\}$
- 53) $\left\{\frac{17}{5}, -\frac{3}{2}\right\}$
- 55) $\{8, -10\}$
- 4) $\{3, 8\}$
- 8) $\{7, 6\}$
- 12) $\left\{-\frac{7}{6}, -5\right\}$
- 16) $\left\{-\frac{1}{5}, 6\right\}$
- 20) $\left\{\frac{6}{5}, -\frac{7}{3}\right\}$
- 24) $\left\{\frac{4}{3}, 3\right\}$
- 28) $\left\{\frac{i\sqrt{70}}{4}, -\frac{i\sqrt{70}}{4}\right\}$
- 38) $\{-8 + 5i, -8 - 5i\}$
- 56) $\{9, 3\}$