

Ch. 6.1/6.2 Practice - Solving Quadratic Equations

Date _____ Period _____

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

1) $x^2 - 8x = -7$

2) $7r = -r^2 - 6$

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

3) $7x^2 + 24x = -9$

4) $8n^2 + 63n = 8$

5) $5x^2 + 48x = -64$

6) $24 = 34r - 7r^2$

7) $18 = -7n^2 + 45n$

8) $3m^2 - 8 = 23m$

9) $0 = -12 - 16v - 5v^2$

10) $-2 + b = -15b^2$

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

11) $6p^2 - 59p + 112 = -2p^2 + p$

12) $-144 - 12a = -90a^2$

13) $44x^2 + 273x = -140 - 5x^2$

14) $27m^2 - 192m = -3m^2 - 72$

15) $99x^2 + 217x - 49 = -6x^2 - 7x$

16) $24 + 62n = -14n^2$

17) $70x^2 + 49x = -7$

18) $21k^2 + 84 = 159k$

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.

19) $5k^2 - 10 = 380$

20) $7n^2 + 4 = 88$

21) $9 - 10x^2 = -761$

22) $3p^2 - 6 = 141$

23) $5b^2 + 2 = -9$

24) $9x^2 + 4 = 409$

25) $4v^2 + 5 = -57$

26) $2r^2 - 1 = -17$

27) $10x^2 + 2 = 492$

28) $4m^2 + 3 = 403$

29) $7a^2 + 8 = 92$

30) $8n^2 + 6 = -160$

Solve each equation by completing the square.

31) $7n^2 - 14n - 52 = 4$

32) $x^2 - 2x - 27 = -9$

33) $v^2 - 15v + 80 = 6$

34) $b^2 - 9b + 69 = -10$

35) $n^2 + 8n + 13 = 6$

36) $7x^2 + 14x + 80 = -2$

37) $0 = -4x^2 - 8x + 29$

38) $0 = -90 + 14x - x^2$

39) $-75 = -4m^2 - 5m$

40) $n^2 - n = 12$

41) $-2x^2 - 11x + 32 = -3x^2 + 2$

42) $8p^2 + 7p + 70 = 7 + 5p + 4p^2$

43) $3k^2 - 3k - 73 = 2k^2 - 9k$

44) $6a^2 - 12a = 28$

Solve each equation with the quadratic formula.

45) $-24 = -8x^2$

46) $2b^2 - 49 = 1$

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

48) $3n^2 - 21 - n = 6 - n$

49) $-4r^2 + 10r - 13 = -7r^2$

50) $105 - 2m = -10 + 5m^2$

51) $15a^2 + 5a - 13 = 3a^2$

52) $7v^2 + 9v + 5 = v$

53) $3p^2 + 8p - 25 = -2$

54) $-4n^2 - 8n + 3 = 4n^2 - 11$

55) $-4 - 12k = -9 - 12k^2$

56) $-5x^2 + 126 = 1$

Answers to Ch. 6.1/6.2 Practice - Solving Quadratic Equations (ID: 2)

- 1) $\{7, 1\}$
- 2) $\{-6, -1\}$
- 3) $\left\{-\frac{3}{7}, -3\right\}$
- 4) $\left\{\frac{1}{8}, -8\right\}$
- 5) $\left\{-\frac{8}{5}, -8\right\}$
- 6) $\left\{\frac{6}{7}, 4\right\}$
- 7) $\left\{\frac{3}{7}, 6\right\}$
- 8) $\left\{-\frac{1}{3}, 8\right\}$
- 9) $\left\{-\frac{6}{5}, -2\right\}$
- 10) $\left\{\frac{1}{3}, -\frac{2}{5}\right\}$
- 11) $\left\{\frac{7}{2}, 4\right\}$
- 12) $\left\{-\frac{6}{5}, \frac{4}{3}\right\}$
- 13) $\left\{-\frac{4}{7}, -5\right\}$
- 14) $\left\{\frac{2}{5}, 6\right\}$
- 15) $\left\{\frac{1}{5}, -\frac{7}{3}\right\}$
- 16) $\left\{-\frac{3}{7}, -4\right\}$
- 17) $\left\{-\frac{1}{2}, -\frac{1}{5}\right\}$
- 18) $\left\{\frac{4}{7}, 7\right\}$
- 19) $\{\sqrt{78}, -\sqrt{78}\}$
- 20) $\{2\sqrt{3}, -2\sqrt{3}\}$
- 21) $\{\sqrt{77}, -\sqrt{77}\}$
- 22) $\{7, -7\}$
- 23) $\left\{\frac{i\sqrt{55}}{5}, -\frac{i\sqrt{55}}{5}\right\}$
- 24) $\{3\sqrt{5}, -3\sqrt{5}\}$
- 25) $\left\{\frac{i\sqrt{62}}{2}, -\frac{i\sqrt{62}}{2}\right\}$
- 26) $\{2i\sqrt{2}, -2i\sqrt{2}\}$
- 27) $\{7, -7\}$
- 28) $\{10, -10\}$
- 29) $\{2\sqrt{3}, -2\sqrt{3}\}$
- 30) $\left\{\frac{i\sqrt{83}}{2}, -\frac{i\sqrt{83}}{2}\right\}$
- 31) $\{4, -2\}$
- 32) $\{1 + \sqrt{19}, 1 - \sqrt{19}\}$
- 33) $\left\{\frac{15 + i\sqrt{71}}{2}, \frac{15 - i\sqrt{71}}{2}\right\}$
- 34) $\left\{\frac{9 + i\sqrt{235}}{2}, \frac{9 - i\sqrt{235}}{2}\right\}$
- 35) $\{-1, -7\}$
- 36) $\left\{\frac{-7 + 5i\sqrt{21}}{7}, \frac{-7 - 5i\sqrt{21}}{7}\right\}$
- 37) $\left\{\frac{-2 + \sqrt{33}}{2}, \frac{-2 - \sqrt{33}}{2}\right\}$
- 38) $\{7 + i\sqrt{41}, 7 - i\sqrt{41}\}$
- 39) $\left\{\frac{15}{4}, -5\right\}$
- 40) $\{4, -3\}$
- 41) $\{6, 5\}$
- 42) $\left\{\frac{-1 + i\sqrt{251}}{4}, \frac{-1 - i\sqrt{251}}{4}\right\}$
- 43) $\{-3 + \sqrt{82}, -3 - \sqrt{82}\}$
- 44) $\left\{\frac{3 + \sqrt{51}}{3}, \frac{3 - \sqrt{51}}{3}\right\}$
- 45) $\{\sqrt{3}, -\sqrt{3}\}$
- 46) $\{5, -5\}$
- 47) $\left\{\frac{-3 + i\sqrt{91}}{10}, \frac{-3 - i\sqrt{91}}{10}\right\}$
- 48) $\{3, -3\}$
- 49) $\left\{1, -\frac{13}{3}\right\}$
- 50) $\left\{-5, \frac{23}{5}\right\}$
- 51) $\left\{\frac{-5 + \sqrt{649}}{24}, \frac{-5 - \sqrt{649}}{24}\right\}$
- 52) $\left\{\frac{-4 + i\sqrt{19}}{7}, \frac{-4 - i\sqrt{19}}{7}\right\}$
- 53) $\left\{\frac{-4 + \sqrt{85}}{3}, \frac{-4 - \sqrt{85}}{3}\right\}$
- 54) $\left\{\frac{-1 - 2\sqrt{2}}{2}, \frac{-1 + 2\sqrt{2}}{2}\right\}$
- 55) $\left\{\frac{3 + i\sqrt{6}}{6}, \frac{3 - i\sqrt{6}}{6}\right\}$
- 56) $\{-5, 5\}$