Algebra 1 Name_____

# Unit 10 Study Guide

Date_____ Period____



**Find the discriminant of each quadratic equation. Then state the number of solutions and whether or not the polynomial is factorable.**

1) $-3k^2 + 10k - 8 = 0$

2) $-2a^2 - 4a - 2 = 0$

3) $-p^2 + 8p = 0$

4) $-4a^2 + 13a + 2 = 9$

5) $-6k^2 - 11k + 18 = 12$

6) $-6n^2 + 2n + 13 = 13$

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

8) $5v^2 + 10v = -5$

9) $-4b^2 = 4 - 8b$

10) $15n^2 - 3n + 14 = 11n^2 - 7n + 13$

11) $-9x^2 - 10 = -3x^2 + 4x$

12) $-22r^2 + 4r - 11 = -13r^2 + 1$

**Solve each equation by factoring (if possible) or the quadratic formula. Round to the nearest thousandths if necessary.**

13) $-8m^2 - 11m + 7 = 0$

14) $-2r^2 + 2r + 60 = 0$

15) $10x^2 + 3x - 6 = 0$

16) $11n^2 - 1 = 0$

17) $11v^2 - 9v - 20 = 3$

18) $5n^2 - 27 = -7$

19) $4b^2 + 6b - 4 = -8$

20) $-8x^2 - 3x - 10 = -3$

21) $-a^2 + 90 = 9a$

22) $6k^2 - 17 = -9k$

23) $-9x = -132 + 6x^2$

24) $0 = -4n^2 - 9n + 34$

25) $15n^2 - 5n - 5 = 9n^2 - 12n$

26) $-12x^2 - 10 = -2x - x^2$

27) $-x^2 - 19 = -5x^2 - 1$

28) $3m^2 - 8m = -4$

# Answers to Unit 10 Study Guide (ID: 1)

1) 4; two rational solutions
2) 0; one rational solution
3) 64; two rational solutions
4) 57; two irrational solutions
5) 265; two irrational solutions
6) 4; two rational solutions
7) 25; two rational solutions
8) 0; one rational solution
9) 0; one rational solution
10) 0; one rational solution
11) –224; two imaginary solutions
12) –416; two imaginary solutions
13) $\{-1.848, 0.473\}$
14) $\{-5, 6\}$
15) $\{0.639, -0.939\}$
16) $\{0.302, -0.302\}$
17) $\{1.912, -1.094\}$
18) $\{2, -2\}$
19) No solution.
20) No solution.
21) $\{-15, 6\}$
22) $\{1.093, -2.593\}$
23) $\{-5.5, 4\}$
24) $\{2, -4.25\}$
25) $\{0.5, -1.667\}$
26) No solution.
27) $\{2.121, -2.121\}$
28) $\{2, 0.667\}$

Algebra 1 Name_____

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**Find the discriminant of each quadratic equation. Then state the number of solutions and whether or not the polynomial is factorable.**

1) $2x^2 + 14x - 3 = 0$

2) $-13x^2 + x - 12 = 0$

3) $5n^2 + 4n + 9 = 0$

4) $-6p^2 - 12p - 16 = -10$

5) $-m^2 - 6m + 1 = 10$

6) $9x^2 - 6x + 5 = 4$

7) $11n^2 + 2 = -13n$

8) $12m^2 = -8m + 7$

9) $-2r^2 = 11r + 8$

10) $-24b^2 - b - 7 = -11b^2 + 12b + 7$

11) $-13n^2 - 17n - 5 = -9n$

12) $21x^2 - x - 6 = 11x^2$

**Solve each equation by factoring (if possible) or the quadratic formula. Round to the nearest thousandths if necessary.**

13) $-6x^2 + 7x + 3 = 0$

14) $12a^2 + 8a - 19 = 0$

15) $3x^2 + 3x - 36 = 0$

16) $v^2 - 16 = 0$

17) $7k^2 - 2k = 12$

18) $6n^2 - 7n - 44 = 5$

19) $-2p^2 + 12p = 6$

20) $-6x^2 - 7x - 2 = -7$

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

22) $12n = -4n^2 + 112$

23) $0 = -13 + 4m^2$

24) $5r = -10r^2 + 22$

25) $-23 + 11n = -3n^2$

26) $13 + 2x = -6 + 12x^2 + 12x$

27) $9b^2 - 14b + 16 = 6 - 4b$

28) $-5v^2 - 10v = -11v^2 + 4$

# Answers to Unit 10 Study Guide (ID: 2)

1) 220; two irrational solutions
2) −623; two imaginary solutions
3) −164; two imaginary solutions
4) 0; one rational solution
5) 0; one rational solution
6) 0; one rational solution
7) 81; two rational solutions
8) 400; two rational solutions
9) 57; two irrational solutions
10) −559; two imaginary solutions
11) −196; two imaginary solutions
12) 241; two irrational solutions
13) $\{-0.333, 1.5\}$
14) $\{0.968, -1.635\}$
15) $\{3, -4\}$
16) $\{4, -4\}$
17) $\{1.46, -1.174\}$
18) $\{3.5, -2.333\}$
19) $\{0.551, 5.449\}$
20) $\{-1.667, 0.5\}$
21) $\{1, 9\}$
22) $\{4, -7\}$
23) $\{-1.803, 1.803\}$
24) $\{1.254, -1.754\}$
25) $\{1.487, -5.154\}$
26) $\{-1.742, 0.909\}$
27) No solution.
28) $\{2, -0.333\}$

Algebra 1 Name_____

# Unit 10 Study Guide

Date_____ Period____



**Find the discriminant of each quadratic equation. Then state the number of solutions and whether or not the polynomial is factorable.**

1) $-x^2 - 2x - 3 = 0$

2) $4a^2 + 8a - 6 = 0$

3) $-7k^2 - 5k + 13 = 0$

4) $-6m^2 - 12m - 12 = -6$

5) $13x^2 - 2x + 25 = 11$

6) $4n^2 - 13n + 9 = -4$

7) $8p^2 + 8p = -2$

8) $-6x^2 - 4x = 0$

9) $2n^2 - 10 = -8n$

10) $-7r^2 + r = 11r - 10$

11) $-11x^2 + 14x + 1 = -6x^2$

12) $-2m^2 - 14m = -3m^2$

**Solve each equation by factoring (if possible) or the quadratic formula. Round to the nearest thousandths if necessary.**

13) $3n^2 + 6n + 3 = 0$

14) $6x^2 - 12x - 4 = 0$

15) $4b^2 - 100 = 0$

16) $v^2 + 8v + 6 = 0$

17) $-6a^2 - 7a + 92 = -6$

18) $9k^2 + 12k - 21 = -11$

19) $4x^2 + 10x - 5 = 9$

20) $10p^2 - 5p - 2 = 8$

21) $17 - n = 8n^2$

22) $-3r^2 + 14 = 11r$

23) $5x^2 + 9x = 3$

24) $24 = 4m^2 + 5m$

25) $3b^2 + 11b + 1 = -2b^2$

26) $12 = -6x + 6x^2$

27) $5v^2 - 8v - 52 = -4$

28) $4n^2 = 6 + n - 7n^2$

# Answers to Unit 10 Study Guide (ID: 3)

1) −8; two imaginary solutions
2) 160; two irrational solutions
3) 389; two irrational solutions
4) 0; one rational solution
5) −724; two imaginary solutions
6) −39; two imaginary solutions
7) 0; one rational solution
8) 16; two rational solutions
9) 144; two rational solutions
10) 380; two irrational solutions
11) 216; two irrational solutions
12) 196; two rational solutions
13) $\{-1\}$
14) $\{2.291, -0.291\}$
15) $\{5, -5\}$
16) $\{-0.838, -7.162\}$
17) $\{-4.667, 3.5\}$
18) $\{0.581, -1.914\}$
19) $\{1, -3.5\}$
20) $\{1.281, -0.781\}$
21) $\{-1.522, 1.397\}$
22) $\{-4.667, 1\}$
23) $\{0.287, -2.087\}$
24) $\{-3.153, 1.903\}$
25) $\{-0.095, -2.105\}$
26) $\{-1, 2\}$
27) $\{4, -2.4\}$
28) $\{0.785, -0.694\}$