

Functions & Relations

Date _____ Period _____

© 2012 Kuta Software LLC. All rights reserved.

Solve each equation by taking square roots.

1) $7x^2 - 10 = -86$

2) $5n^2 - 6 = -100$

3) $10v^2 - 7 = 683$

4) $8x^2 - 4 = 276$

5) $3b^2 + 10 = -51$

6) $7n^2 - 8 = 6$

Solve each equation by factoring.

7) $(v + 1)(v + 4) = 0$

8) $(b + 1)(b - 4) = 0$

9) $4x^2 + 44x + 112 = 0$

10) $8n^2 + 16n - 384 = 0$

11) $5a^2 + 35a - 40 = 0$

12) $5k^2 + 5k - 210 = 0$

13) $6x^2 - 5x - 6 = 0$

14) $5x^2 - 13x + 6 = 0$

Solve each equation by completing the square.

15) $n^2 - 2n + 18 = 0$

16) $b^2 - 12b + 59 = 0$

17) $v^2 - 2v + 36 = 0$

18) $x^2 + 6x - 26 = 0$

19) $5x^2 - 10x - 18 = -3$

20) $a^2 + 8a - 7 = 2$

21) $5k^2 + 10k + 22 = 2$

22) $3r^2 + 6r - 19 = 5$

Solve each equation with the quadratic formula.

23) $5k^2 - 5k - 60 = 0$

24) $4a^2 + a - 3 = 0$

25) $3x^2 + 10x - 25 = 0$

26) $7x^2 + 2x + 1 = 0$

27) $8n^2 - 4n + 2 = 0$

28) $m^2 + 5 = 0$

29) $9p^2 - 4p + 1 = 0$

30) $3x^2 - 11 = 0$

Find the discriminant of each quadratic equation then state the number and type of solutions.

31) $-6n^2 - 5n - 3 = 0$

32) $7m^2 - 6m = 0$

33) $9p^2 - 9p - 10 = 0$

34) $7x^2 + x - 8 = 0$

35) $5x^2 = -12 + 13x$

36) $a^2 = 4$

37) $-7k^2 - 14k = 7$

38) $4p^2 - 8p = 5$

39) $3x^2 = 6x - 3$

40) $3n^2 = 12n - 12$

41) $-m^2 - 4 = -4m$

42) $14r^2 + 8 = -9r$

Functions & Relations

© 2012 Kuta Software LLC. All rights reserved.

Solve each equation by taking square roots.

1) $7x^2 - 10 = -86$ $\left\{ \frac{2i\sqrt{133}}{7}, -\frac{2i\sqrt{133}}{7} \right\}$

2) $5n^2 - 6 = -100$ $\left\{ \frac{i\sqrt{470}}{5}, -\frac{i\sqrt{470}}{5} \right\}$

3) $10v^2 - 7 = 683$
 $\{\sqrt{69}, -\sqrt{69}\}$

4) $8x^2 - 4 = 276$
 $\{\sqrt{35}, -\sqrt{35}\}$

5) $3b^2 + 10 = -51$ $\left\{ \frac{i\sqrt{183}}{3}, -\frac{i\sqrt{183}}{3} \right\}$

6) $7n^2 - 8 = 6$
 $\{\sqrt{2}, -\sqrt{2}\}$

Solve each equation by factoring.

7) $(v + 1)(v + 4) = 0$
 $\{-1, -4\}$

8) $(b + 1)(b - 4) = 0$
 $\{-1, 4\}$

9) $4x^2 + 44x + 112 = 0$
 $\{-7, -4\}$

10) $8n^2 + 16n - 384 = 0$
 $\{6, -8\}$

11) $5a^2 + 35a - 40 = 0$
 $\{1, -8\}$

12) $5k^2 + 5k - 210 = 0$
 $\{6, -7\}$

13) $6x^2 - 5x - 6 = 0$
 $\left\{ -\frac{2}{3}, \frac{3}{2} \right\}$

14) $5x^2 - 13x + 6 = 0$
 $\left\{ \frac{3}{5}, 2 \right\}$

Solve each equation by completing the square.

15) $n^2 - 2n + 18 = 0$
 $\{1 + i\sqrt{17}, 1 - i\sqrt{17}\}$

16) $b^2 - 12b + 59 = 0$
 $\{6 + i\sqrt{23}, 6 - i\sqrt{23}\}$

17) $v^2 - 2v + 36 = 0$
 $\{1 + i\sqrt{35}, 1 - i\sqrt{35}\}$

18) $x^2 + 6x - 26 = 0$
 $\{-3 + \sqrt{35}, -3 - \sqrt{35}\}$

19) $5x^2 - 10x - 18 = -3$
 $\{3, -1\}$

20) $a^2 + 8a - 7 = 2$
 $\{1, -9\}$

21) $5k^2 + 10k + 22 = 2$
 $\{-1 + i\sqrt{3}, -1 - i\sqrt{3}\}$

22) $3r^2 + 6r - 19 = 5$
 $\{2, -4\}$

Solve each equation with the quadratic formula.

23) $5k^2 - 5k - 60 = 0$

$\{4, -3\}$

25) $3x^2 + 10x - 25 = 0$

$\left\{\frac{5}{3}, -5\right\}$

27) $8n^2 - 4n + 2 = 0$

$\left\{\frac{1 + i\sqrt{3}}{4}, \frac{1 - i\sqrt{3}}{4}\right\}$

29) $9p^2 - 4p + 1 = 0$

$\left\{\frac{2 + i\sqrt{5}}{9}, \frac{2 - i\sqrt{5}}{9}\right\}$

24) $4a^2 + a - 3 = 0$

$\left\{\frac{3}{4}, -1\right\}$

26) $7x^2 + 2x + 1 = 0$

$\left\{\frac{-1 + i\sqrt{6}}{7}, \frac{-1 - i\sqrt{6}}{7}\right\}$

28) $m^2 + 5 = 0$

$\{i\sqrt{5}, -i\sqrt{5}\}$

30) $3x^2 - 11 = 0$

$\left\{\frac{\sqrt{33}}{3}, -\frac{\sqrt{33}}{3}\right\}$

Find the discriminant of each quadratic equation then state the number and type of solutions.

31) $-6n^2 - 5n - 3 = 0$

-47 ; two imaginary solutions

33) $9p^2 - 9p - 10 = 0$

441 ; two real solutions

35) $5x^2 = -12 + 13x$

-71 ; two imaginary solutions

37) $-7k^2 - 14k = 7$

0 ; one real solution

39) $3x^2 = 6x - 3$

0 ; one real solution

41) $-m^2 - 4 = -4m$

0 ; one real solution

32) $7m^2 - 6m = 0$

36 ; two real solutions

34) $7x^2 + x - 8 = 0$

225 ; two real solutions

36) $a^2 = 4$

16 ; two real solutions

38) $4p^2 - 8p = 5$

144 ; two real solutions

40) $3n^2 = 12n - 12$

0 ; one real solution

42) $14r^2 + 8 = -9r$

-367 ; two imaginary solutions