

Assignment: Quadratics

Date _____

Find the value that completes the square and then rewrite as a perfect square.

1) $x^2 + 30x + \underline{\hspace{1cm}}$

2) $x^2 - 19x + \underline{\hspace{1cm}}$

3) $a^2 + 2a + \underline{\hspace{1cm}}$

4) $x^2 - 10x + \underline{\hspace{1cm}}$

Solve each equation by completing the square.

5) $m^2 + 8m - 89 = 10$

6) $b^2 - 16b - 44 = 5$

7) $b^2 + 18b + 70 = -10$

8) $n^2 + 10n + 20 = 4$

Sketch the graph of each function.

9) $y = x^2 + 4x + 7$

10) $y = x^2 + 4x + 3$

11) $y = (x + 4)^2 - 1$

12) $y = (x - 4)^2 - 2$

13) $y < -3x^2 - 6x - 4$

14) $y > x^2 + 4x + 7$

15) $y > -2x^2 + 16x - 29$

16) $y > -2x^2 + 12x - 15$

Solve each equation with the quadratic formula.

17) $x^2 - 36 = 0$

18) $2n^2 - n - 6 = 0$

19) $5a^2 + 7a - 6 = 0$

20) $2x^2 + 10x - 28 = 0$

Find the value of the discriminant of each quadratic equation.

21) $8x^2 - 2 = 0$

22) $4n^2 - 10n - 4 = 0$

23) $4b^2 - 3b + 2 = 0$

24) $-3x^2 - 8x + 2 = 0$

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

25) $-9n^2 - 6n - 1 = 0$

26) $2n^2 - 8n + 9 = 0$

27) $8v^2 + 5v + 5 = 0$

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

Solve each system of equations.

29) $2x^2 + 5y^2 - 49x + y + 153 = 0$
 $x + y = 2$

30) $x^2 + y^2 - 15x - y - 4 = 0$
 $x + y = -3$

31) $-3x^2 + 2y^2 - x - y - 70 = 0$
 $x - y - 3 = 0$

32) $2x^2 - 6y^2 + x - 3y - 10 = 0$
 $x - 3y = 2$

Solve each equation with the quadratic formula.

33) $5x^2 + 10x - 120 = 0$

34) $4a^2 - 10a + 6 = 0$

Answers to Assignment: Quadratics

1) 225; $(x + 15)^2$

2) $\frac{361}{4}; \left(x - \frac{19}{2}\right)^2$

3) 1; $(a + 1)^2$

4) 25; $(x - 5)^2$

5) $\{-4 + \sqrt{115}, -4 - \sqrt{115}\}$

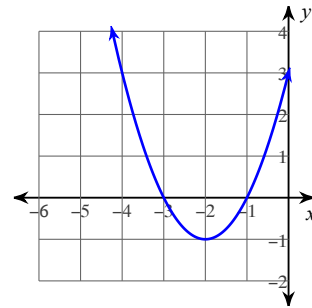
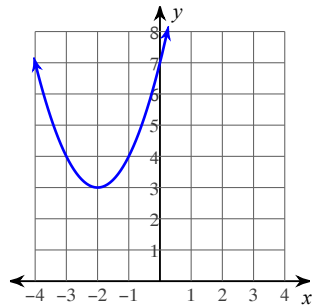
6) $\{8 + \sqrt{113}, 8 - \sqrt{113}\}$

7) $\{-8, -10\}$

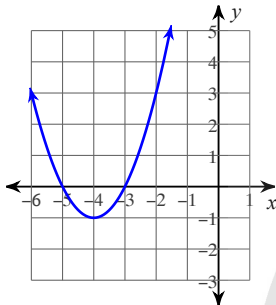
8) $\{-2, -8\}$

9)

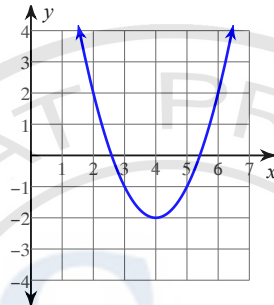
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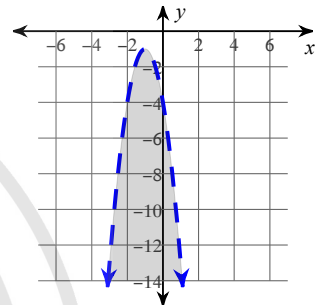
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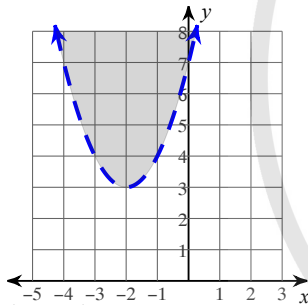
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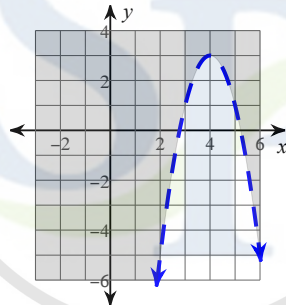
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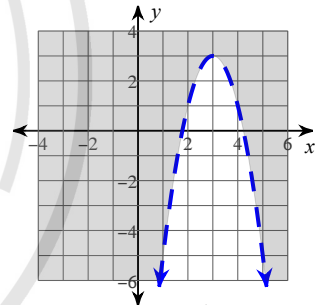
14)



15)



16)



17) $\{6, -6\}$

18) $\left\{2, -\frac{3}{2}\right\}$

19) $\left\{\frac{3}{5}, -2\right\}$

20) $\{2, -7\}$

21) 64

22) 164

23) -23

24) 88

25) 0; one rational solution

26) -8; two imaginary solutions

27) -135; two imaginary solutions

28) 0; one rational solution

29) $(5, -3)$

30) $(2, -5)$

31) $(-7, -10)$

32) $(2, 0), (-4, -2)$

33) $\{4, -6\}$

34) $\left\{\frac{3}{2}, 1\right\}$