Algebra 1 Review 9.1-9.4
Quiz 9.3-9.4 (Start 2:20?)
MCT is Mon.

9-1 Graphing Quadratic Functions

Consider each equation.

a. Determine whether the function has a *maximum* or *minimum* value.

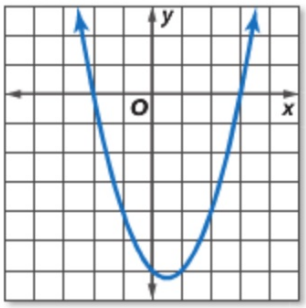
b. State the maximum or minimum value.

c. What are the domain and range of the function?

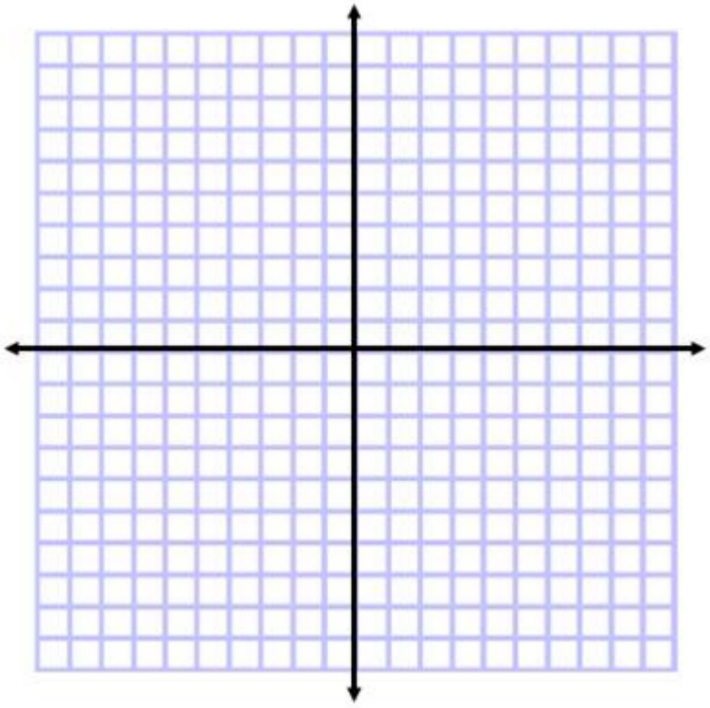
11. $y = x^2 - 4x + 4$

Example 2

Solve $x^2 - x - 6 = 0$ by graphing.



19. $x^2 + 4x - 3 = 0$

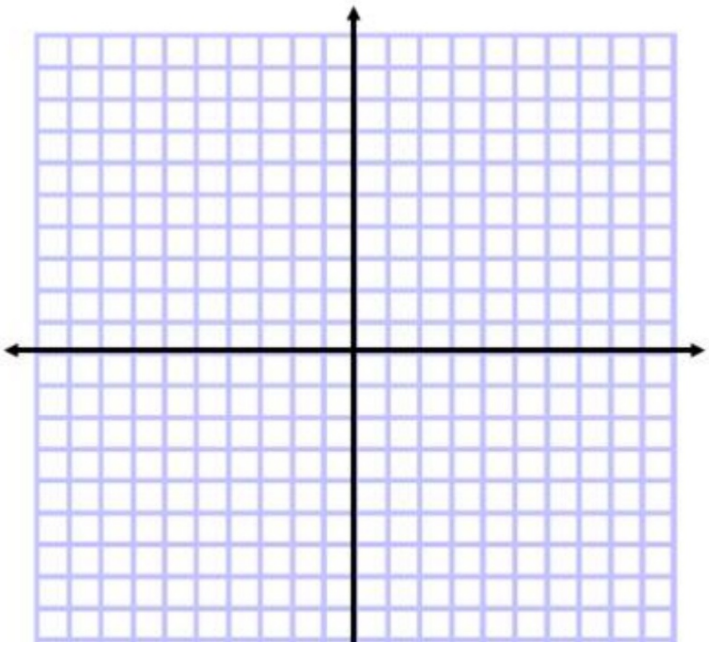


9-3 Transformations of Quadratic Functions

Describe how the graph of each function is related to the graph of $f(x) = x^2$.

23. $f(x) = x^2 + 8$

24. $f(x) = x^2 - 3$



9-4 Solving Quadratic Equations by Completing th

Solve each equation by completing the square. Round to the nearest tenth if necessary.

31. $x^2 + 6x + 9 = 16$

$-9 \quad -9$

$x^2+6x+9 = 7+9$

$\sqrt{(x+3)^2} = \sqrt{16}$

$x+3 = \pm 4$

$x+3 = 4$ $\quad -3 \quad -3$ $\quad x=1$ $\qquad x+3 = -4$ $\quad -3 \quad -3$ $\quad x=-7$

$\cup$

$\frac{1}{2}(\quad)^2$

$y=(x-3)^2+6$

$y=2(x+1)^2-5$

$y=-3(x-5)^2+7$

$\cap$

35. $n^2 - 7n = 5$

$\frac{5}{2} \cdot \frac{5}{2}$

$x^2 - 5x + \frac{25}{4} = \frac{4}{4}3 + \frac{25}{4}$

$\sqrt{\left(x - \frac{5}{2}\right)^2} = \frac{52}{4} + \frac{25}{4} = \sqrt{\frac{77}{4}}$

$x - \frac{5}{2} = \pm \frac{\sqrt{77}}{2}$

$x - 2.5 = \pm 4.4$

$x = 6.9$

$x - 2.5 = 4.4$
$+2.5 \quad +2.5$

$x - 2.5 = -4.4$
$+2.5 \quad +2.5$

$x = -1.9$

Whiteboards

$$y = -4(x-2)^2 + 8$$

$$\frac{3x^2}{3} + \frac{2x}{3} - \frac{6}{3} = \frac{18}{3}$$

$\frac{1}{3} \cdot \frac{1}{3}$

$$x^2 + \frac{2}{3}x - 2 = 6$$
$$+2 \quad +2$$

$\frac{2}{3} \cdot \frac{1}{2}$

$\frac{2}{6}$

$$x^2 + \frac{2}{3}x + \frac{1}{9} = \frac{9}{9}8 + \frac{1}{9}$$

$$\sqrt{\left(x + \frac{1}{3}\right)^2} = \sqrt{\frac{73}{9}}$$

$$x + \frac{1}{3} = \pm\frac{\sqrt{73}}{3}$$

$\frac{\sqrt{73}}{3}$ $\sqrt{\left(\frac{73}{9}\right)}$

$$x + \frac{1}{3} = \pm 2.85$$

$$x + \frac{1}{3} = 2.85$$
$$-\frac{1}{3}$$
$$x = 0.33 + 2.85$$
$$= 2.52$$
$$= 2.5$$

$$x + \frac{1}{3} = -2.85$$
$$-\frac{1}{3} \quad -\frac{1}{3}$$
$$x = -0.33 - 2.85$$
$$-3.18$$
$$-3.2$$

$$\frac{2x^2}{2} + \frac{7x}{2} + \frac{4}{2} = \frac{0}{2}$$

$\frac{7}{4} \cdot \frac{7}{4}$

$\frac{7}{2} \cdot \frac{1}{2}$

$$x^2 + \frac{7}{2}x + \frac{49}{16} = -2 + \frac{49}{16}$$

$$\left(x + \frac{7}{4}\right)^2 = \frac{-32}{16} + \frac{49}{16}$$

$$\sqrt{\left(x + \frac{7}{4}\right)^2} = \sqrt{\frac{17}{16}}$$

$$x + \frac{7}{4} = \pm\frac{\sqrt{17}}{4}$$

$x + \frac{7}{4} = 1.03$

$x + 1.75 = 1.03$

$-1.75 \quad -1.75$

-0.7

$x + \frac{7}{4} = -1.03$

$x + 1.75 = -1.03$

$-1.75 \quad -1.75$

-2.8