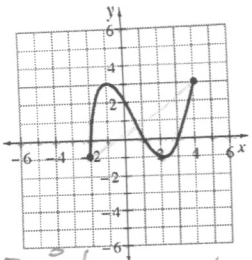
Levy Zaragsky Period 5 Lesson 1.1.3



## Review & Preview

**1-35.** Examine the function $y = g(x)$ graphed at right. Homework Help

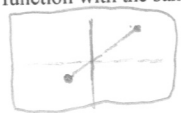



a. Which $x$-values have points on the graph? That is, describe the domain of $g$. $-2 \le x \le 4$

b. What are the possible outputs for $g(x)$? That is, what is the range? $-1 \le y \le 3$

c. Ricky thinks the range of $g(x)$ is $-1, 0, 1, 2,$ and $3$. Is he correct? Why or why not? no because it can also be 2.5 or anything in between -1 and 3.

d. Make a sketch of another function with the same domain and range as $g$.



**1-36.** George was solving the equation $(2x - 1)(x + 3) = 4$ and he got the solutions $x = \frac{1}{2}$ and $x = -3$. Jeffrey came along and said, *"You made a big mistake! You set each factor equal to zero, but it's not equal to zero, it's equal to* 4. *So you have to set each factor equal to* 4 *and then solve."* Who is correct? Show George and Jeffrey how to solve this equation. To be sure that you are correct, check your solutions. Homework Help

Jeffrey is more correct than George, but I would move the 4 to the other side and then open them up and re-factor, and then solve it again.

Note: This stoplight icon appears periodically throughout the text. Problems with this icon display common errors students make. Be sure not to make the same mistakes yourself!

**1-37.** On many graphing calculators, equations must be entered in $y =$ form. Rewrite each equation in $y =$ form. Then use the Desmos tool to confirm that your equations are correct. *1-37 HW eTool* (Desmos). Homework Help

a. $x = 3y + 6$, $3y = x - 6$, $y = \frac{1}{3}x - 2$

b. $x = 5y - 10$, $5y = x + 10$, $y = \frac{1}{5}x + 2$

c. $x = y^2$, $y = \pm\sqrt{x}$, $y = \pm\sqrt{x}$

d. $x = 2y^2 - 4$, $2y^2 = x + 4$, $y^2 = \frac{1}{2}x + 2$, $y = \pm\sqrt{\frac{1}{2}x + 2}$

e. $x = (y - 5)^2$, $x = y^2 - 10y + 25$, $y^2 - 10y = x - 25$ ← that's how Horizontal Parabolas are written.

**1-38.** Given $f(x) = 2x - 7$, complete parts (a) through (c). Homework Help

a. Compute $f(0)$. $-7$

b. Solve $f(x) = 0$. $2x - 7 = 0$, $2x = 7$, $x = 3.5$

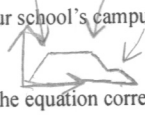
c. What do the answers to parts (a) and (b) tell you about the graph of $y = f(x)$? the y-intercept is $(0, -7)$ the x-intercept is $(3.5, 0)$

**1-39.** Jill needs to cut a smaller piece from a 30-foot length of lumber. Create multiple representations (table, graph, and equation) for the function with $x$-values that are the length of the piece Jill cuts off and $y$-values that are the length of the piece that is left over. Which representation best portrays the situation? Why? Explain. Homework Help

best portrays the situation? Why? Explain. Homework Help

Start End (6th period)

**1-40.** Sketch a graph showing the relationship between the number of people on your school's campus and the time of day. Homework Help




**1-41.** Where is the error in the solution below? Explain what the error is and solve the equation correctly. Be sure to check your answer. Homework Help

$x=5, x=-1$

$\frac{5}{x} = x-4$

$5 = x^2-4x$

$x^2-4x-5$

$(x-5)(x+1)$

only multiplied one side

$\frac{5}{x} = x-4$

$x \cdot \frac{5}{x} = x-4$

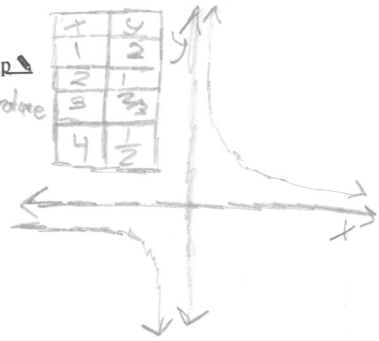
$5 = x-4$

$x = 9$

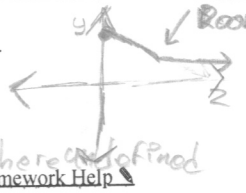
**1-42.** Create a table and graph for the function $g(x) = \frac{2}{x}$. Then completely describe the graph. *1-42 HW eTool* (Desmos) Homework Help

D: $\mathbb{R}; x \neq 0$, R: $\mathbb{R}; y \neq 0$, Decreasing, Hyperbolic, Rational

| x | y |
|---|---|
| 1 | 2 |
| 2 | 1 |
| 3 | $\frac{2}{3}$ |
| 4 | $\frac{1}{2}$ |




**1-43.** The temperature of a boxed pizza carried home depends on how long it has been out of the oven. Homework Help




a. Sketch a reasonable graph of this situation. Be sure to label the axes.

b. Should your graph have an asymptote? Why or why not?

No because there isn't somewhere where it stopped

**1-44.** Solve each of the following equations. Be sure to check your answers. Homework Help

a. $\frac{6}{x} = x-1$ $x^2-x=6, x^2-x-6=0$

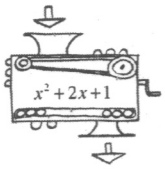
$(x-3)(x+2)=0$

$x=3, x=-2$

b. $\frac{9}{x} = x$ $x^2=9$

$x=\pm 3$

**1-45.** If 1 is the output for Carmichael's function machine shown at right, how can you determine what number is dropped in? Calculate the number(s) that could have been dropped in. Homework Help




$x^2+2x+1=1$

$x^2+2x=0$

$x(x+2)=0$ $x=0, x=-2$

**1-46.** Algebraically determine the $y$-intercept of the graph of each equation. Write each answer as an ordered pair. Homework Help

a. $y = 3x+6$, $y=3(0)+6$, $(0,6)$

b. $x = 5y-10$, $5y-10=0$, $5y=10$, $y=2$, $(0,2)$

c. $y = x^2$, $y=(0)^2$, $(0,0)$

d. $y = 2x^2-4$, $y=2(0)^2-4$, $y=-4$, $(0,-4)$

e. $y = (x-5)^2$, $y=(0-5)^2$, $(0,25)$

f. $y = 3x^3-2x^2+13$, $y=3(0)^3-2(0)^2+13$, $y=13$, $(0,13)$

**1-47.** Although the Quadratic Formula always works as a strategy to solve quadratic equations, it is not always the most efficient method. For example, sometimes, a faster method is to factor and use the Zero Product Property. For each equation below, choose the method you think is most efficient to solve the equation. Homework Help

a. $x^2+7x-8=0$, $(x+8)(x-1)$ $x=-8, x=1$

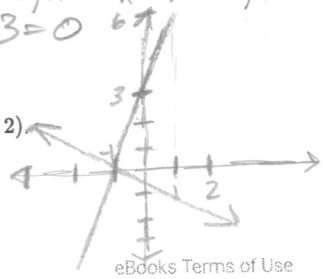
b. $(x+2)^2 = 49$, $x+2 = \pm 7$, $x=5, x=-9$

c. $5x^2-x-7=0$, $\frac{1 \pm \sqrt{1+140}}{10} = \frac{1 \pm \sqrt{141}}{10}$

d. $x^2+4x=-1$, $x^2+4x+1=0$, $x^2+4x+4-3=0$

$(x+2)^2-3=0$

**1-48.** Graph the line $y = 3x+3$. Homework Help



a. Sketch the line that is perpendicular to $y = 3x+3$ that passes through the point $(-3, 2)$.

b. Write the equation of the perpendicular line. $y = -\frac{1}{3}x+1$