Closure

CL 1-110. Given the functions $f(x)=\sqrt{x+4}$ and $g(x)=x^2-x$, determine each of the following values.

a. $f(5)$ 3

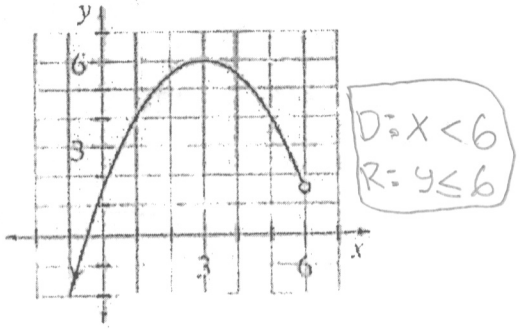
b. $g(-1)$ $(-1)^2-(-1)=2$

c. x if $f(x)=10$, $10=\sqrt{x+4}$, $100=x+4$, $x=96$

d. x if $g(x)=6$, $6=x^2-x$, $x^2-x-6=0$, $(x-3)(x+2)$, $x=3, x=-2$

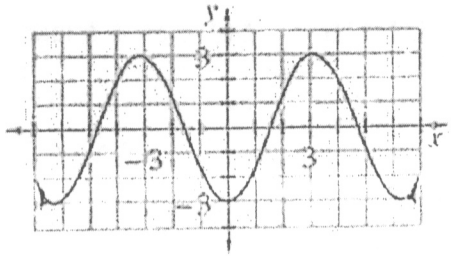
CL 1-111. Describe the domain and range for each function.

a.



D: $x<6$
R: $y\leq 6$

b.



D: R
R: $-3\leq y\leq 3$

CL 1-112. Algebraically determine the x- and y-intercepts of each function.

a. $y=-\frac{3}{2}x+8$

$-\frac{3}{2}x+8=0$, $-\frac{3}{2}x=-8$, $-3x=-16$, $x=\frac{16}{3}$

y: $(0,8)$, x: $(\frac{16}{3},0)$

b. $2x-3y=-6$

$3y=2x+6$

$y=\frac{2}{3}x+2$

y-int: $(0,2)$
x-int: $(-3,0)$

$\frac{2}{3}x=-2$

$2x=-6$

$x=-3$

CL 1-113. Solve each equation.

a. $\frac{x+2}{5}=\frac{10-2x}{3}$

$50-10x=3x+6$

$13x=44$

$x=\frac{44}{13}$

b. $\frac{3}{x}-1=8$

$3-x=8x$

$x=\frac{1}{3}$

c. $\frac{x}{2}+\frac{x}{3}=7$

$5x=42$

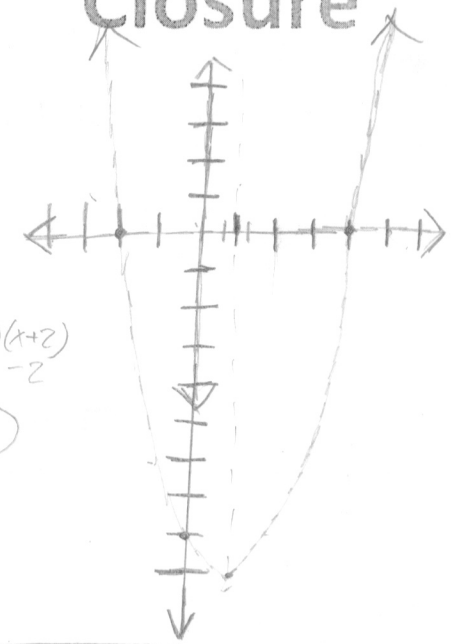
$x=\frac{42}{5}$

y-int: (0, 8)
x-int: (4, 0), (−2, 0)
Vertex: (1, −9)
Line of Sym: (x = 1)

$x^2 - 2x + 1 - 9$
$(x-1)^2 - 9$

IR

Closure



CL 1-114. Create a complete graph of the function $f(x) = x^2 - 2x - 8$ and fully describe it.

$(x-4)(x+2)$

CL 1-115. Identify the point(s) of intersection of each pair of functions.

a. $y = 3x + 15$
$y = 3 - 3x$
$y = 3 - 3(-2)$
$y = 9$

$3x + 15 = 3 - 3x$
$6x = -12$
$x = -2$
$(-2, 9)$

b. $y = x^2 - 3x - 8$, $x^2 - 3x - 10$, $(x-5)(x+2)$, 5, -2
$y = 2$

$(5, 2), (-2, 2)$

CL 1-116. Solve each quadratic equation.

a. $x^2 - x - 6 = 0$

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

b. $5x^2 - 8 = 12x$

$5x^2 - 12x - 8 = 0$

$$\frac{12 \pm \sqrt{144 + 160}}{10} = \frac{12 \pm \sqrt{304}}{10}$$

c. $x^2 - 8x - 20 = 0$

$(x-10)(x+2)$
$x = 10, x = -2$

d. $2y^2 - 5y = 12$

$2y^2 - 5y - 12 = 0$

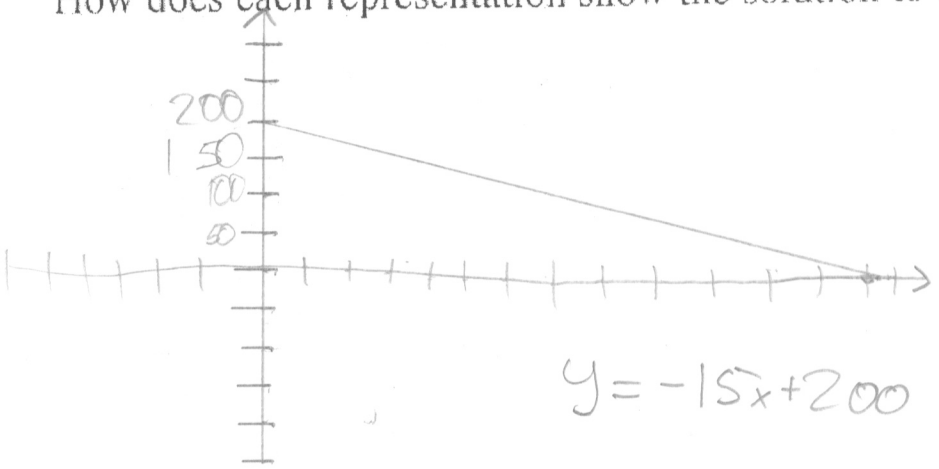
$$\frac{5 \pm \sqrt{25 + 196}}{4} = \frac{5 \pm \sqrt{217}}{4}$$

Closure

CL 1-117. Micah was given $200 for his birthday. Each week he spends $15 on comic books. In how many weeks will his birthday money be gone?

13

Create multiple representations (table, graph, and equation) for the relationship between the weeks since Micah's birthday and how much money he has left. How does each representation show the solution to the problem?



x	y
0	200
13.3	0
12	20
10	50
8	80

CL 1-118. Check your answers using the table at the end of this section. Which problems do you feel confident about? Which problems made you think? Have you worked on problems like these in math classes you have taken before? Use the table to make a list of topics you need help on and a list of topics you need to practice more.