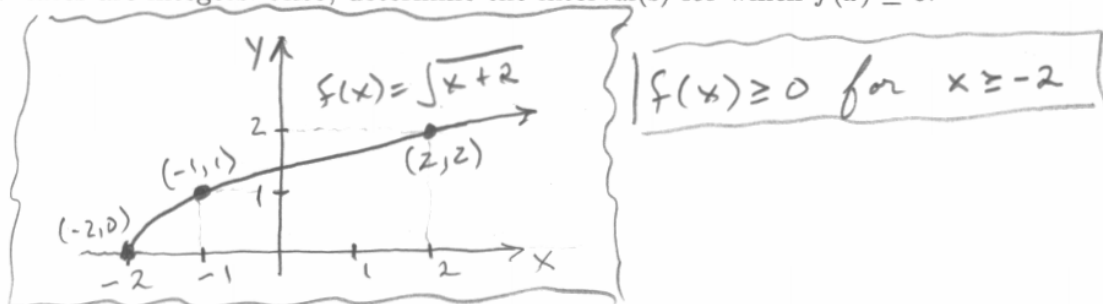


SHOW YOUR WORK FOR FULL CREDIT.

1. Graph $f(x) = \sqrt{x+2}$. Make sure you label at least three points on the graph whose coordinates are integers. Also, determine the interval(s) for which $f(x) \geq 0$.



2. Write a linear function $f(x)$ that has the function values $f(5) = -4$ and $f(-2) = 17$.

$$m = \frac{17 - (-4)}{-2 - 5} = -3$$

$$y = -3x + b$$

$$-4 = -3(5) + b$$

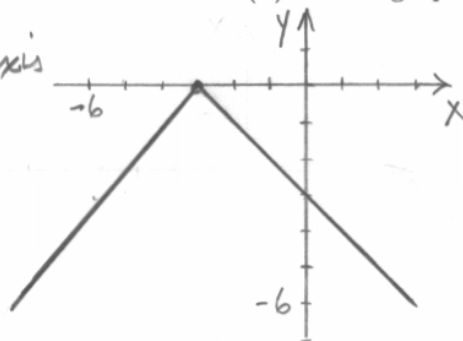
$$b = 11$$

$$y = -3x + 11$$

3. Use the graph of $f(x) = |x|$ to write an equation of the function $h(x)$ whose graph is shown.

Shift left 3, reflect in x-axis

$$h(x) = -|x+3|$$



4. Given $f(x) = \frac{1}{x}$ and $g(x) = \frac{1}{x^2}$, find the following. Make sure you simplify your answer.

(a) $(f+g)(x) = \frac{1}{x} + \frac{1}{x^2} = \frac{x+1}{x^2}$

(b) $(f/g)(x) = \frac{1/x}{1/x^2} = \frac{1}{x} \cdot \frac{x^2}{1} = x, x \neq 0$

5. Given $f(x) = 3x + 5$ and $g(x) = 5 - x$, find the following. Make sure you simplify your answer.

(a) $(f \circ g)(x) = f(g(x)) = f(5-x) = 3(5-x) + 5 = 20 - 3x$

(b) $(g \circ f)(x) = g(f(x)) = g(3x+5) = 5 - (3x+5) = -3x$