Name _____

Homework 1

Functions

Graphs of Functions

Linear Functions

1. (4) Determine the exact solutions to $(2x+3)(x-2)=4$.

2. (4) Solve $3x-1=\dfrac{(2x+1)^2}{x-2}$. Give exact solutions.

3. (4) Determine the equation of the line which passes through the points $(-5, -1)$ and $(7, 5)$. Give your answer in slope-intercept form.

4. (5) Determine the zeros of the function $g(t) = \dfrac{(t^2 - 6)(3t - 2)}{t^2 + 3t - 4}$.

5. (1ea) Use the function $g(x) = \sqrt{64 - x^2}$ to evaluate and simplify the following. Give simplified, exact answers.

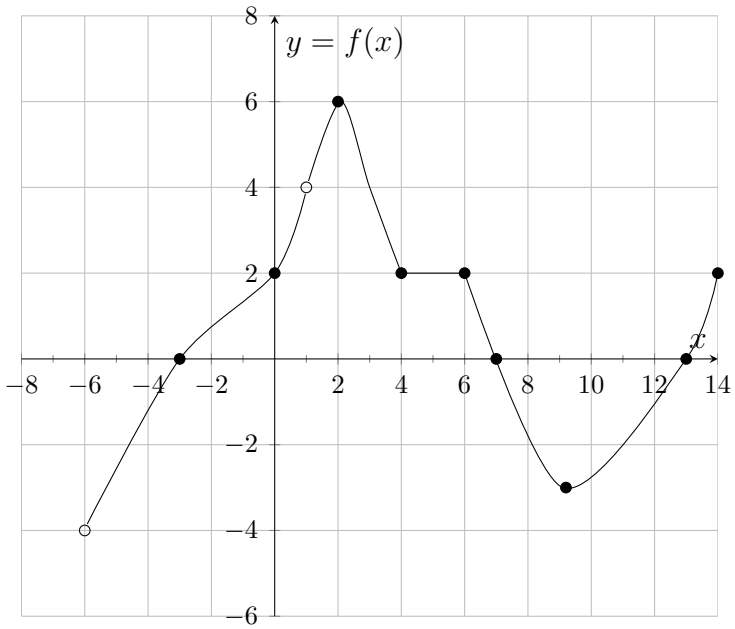
   (a) $g(0)$

   (b) $g(-3)$

   (c) $g(\sqrt{15})$

   (d) $g(8)$

6. Use the graph of the function $y = f(x)$ shown below to determine the following:



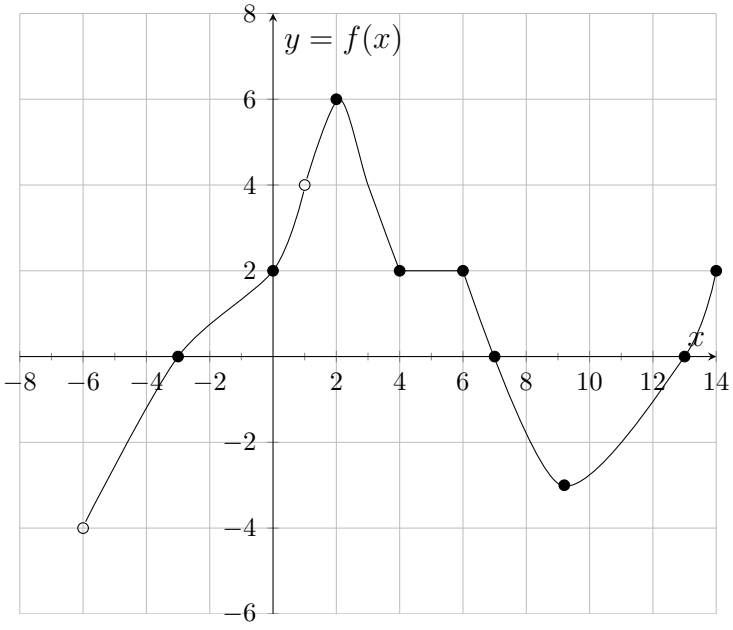
(a) (1ea) $f(-3) =$ $f(0) =$

$f(2) =$ $f(12) =$

(b) (2ea) What is the domain of $f(x)$?

What is the range of $f(x)$?

(c) (3) What is/are the intercept(s) of the graph of $f(x)$?



(d) (2) On what open interval(s) is $f(x)$ decreasing?

(e) (2) On what interval(s) is $f(x)$ negative?

(f) (2) Determine the relative maxima and minima of $f(x)$.

(g) (2) For what value(s) of x is $f(x) = 4$?