Name: ____ Date: ____________________________

BLM 7–6

Section 7.3 Extra Practice

1. Solve each absolute value equation. Verify the solution.

a) $|x + 1| = 2$ **b)** $|x - 3| + 1 = 0$

c) $|2x| = 5$ **d)** $\left|\frac{x}{4}\right| = 0$

2. Determine whether $x = 1$ is a solution to each equation.

a) $2|x - 5| = 8$

b) $|3x - 2| + 6 = 12$

c) $|-2x - 3| = 5$

d) $3|2x - 2| = 0$

3. Solve each absolute value equation algebraically.

a) $|x - 5| = 3x + 4$

b) $|3m + 2| = m$

c) $|-x + 5| = x - 5$

d) $|2n| = 3n - 8$

4. Solve each equation.

a) $|x^2 - 2x| = 1$

b) $|x^2 - 3x| = 4$

c) $8 = |0.5x^2 + 3x|$

d) $3 = |-4x^2 + 8x|$

5. Solve each absolute value equation.

a) $|4x| = x^2 - 5$

b) $2x^2 = |5x + 3|$

c) $|2(x - 4)^2 - 5| = 3$

d) $0 = |x^2 - 2x - 3| - 4$

6. Determine whether $x = 2$ is a solution to each equation.

a) $x + 1 = |x^2 - 1|$

b) $|x^2 - 3x| = 3x - 8$

c) $2(x - 4)^2 - 6 = |0.5x + 1|$

d) $|x + 2| - 3 = -4x^2 + 8x + 5$

7. Given the equation $|x^2 - 4| = k$, determine the value of k for each situation.

a) There is one solution only.

b) There are two solutions.

c) There are three solutions.

d) There are four solutions.

8. Mark and Chloe each solve $|x - 12| = x^2$. Mark solves the equation algebraically, while Chloe solves the equation graphically. Who is correct? Explain your reasoning.

Mark's solution:

$|x-12| = x^2$

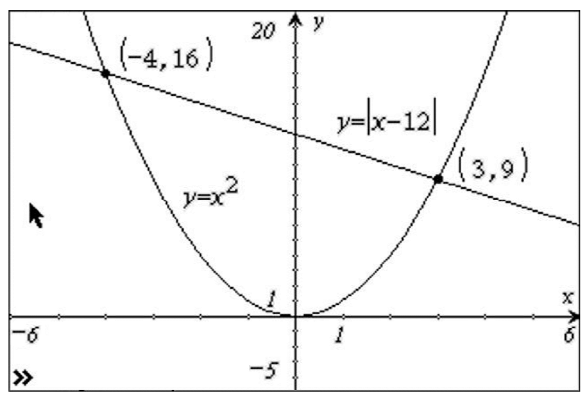
$x - 12 = x^2$ or $-x + 12 = x^2$

$0 = x^2 - x + 12$ $\quad$ $0 = x^2 + x - 12$

No solution $\quad$ $0 = (x-4)(x+3)$

$x = 4$ or $x = -3$

Chloe's solution:



9. Evanka graphed the functions $f(x) = \frac{x}{2}$ and $g(x) = |-x^2 + 2|$ on the same set of axes.

a) How could she use the graph to solve $\left|-x^2 + 2\right| - \frac{x}{2} = 0$?

b) State the solution. Express the solution to the nearest hundredth.

Name: ____ Date: ____________________________

Section 7.4 Extra Practice

1. For each function,

i) write the reciprocal function

ii) state the domain of the function and of its reciprocal function

iii) state the range of the function and of its reciprocal function

a) $y = x + 4$ **b)** $y = 3x - 9$

c) $y = (x + 2)(x - 2)$ **d)** $y = x^2 + 6x + 9$

2. For each function,

i) state the zeros

ii) write the reciprocal function

iii) identify the non-permissible values of the corresponding rational expression

iv) state the equation(s) of the vertical asymptote(s)

a) $f(x) = 3 + x$

b) $g(x) = 2x - 1$

c) $h(x) = (x + 2)(x - 3)$

d) $j(x) = -2x^2 - 12x - 10$

3. State the equation(s) of the vertical asymptote(s) for each function.

a) $f(x) = \dfrac{1}{5 - x}$

b) $g(x) = \dfrac{1}{7x - 2}$

c) $h(x) = \dfrac{1}{(x + 1)(2x + 1)}$

d) $h(x) = \dfrac{1}{2x^2 + 2x - 24}$

4. What are the x-intercepts and y-intercepts of each function?

a) $y = \dfrac{1}{2x + 5}$

b) $y = \dfrac{1}{3 - 2x}$

c) $f(x) = \dfrac{1}{(2x + 3)(x - 1)}$

d) $g(x) = \dfrac{1}{x^2 + 7x + 12}$

5. Sketch the graph of $y = f(x)$ and the graph of $y = \dfrac{1}{f(x)}$ on the same set of axes. Label the asymptotes, the invariant points, and the intercepts.

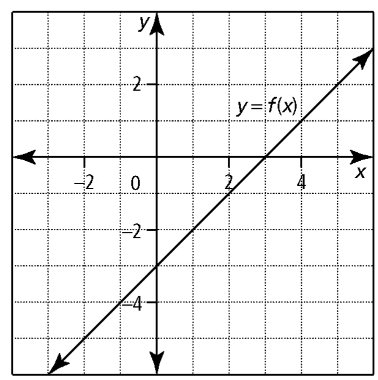
a) $f(x) = x + 2$

b) $f(x) = 3x$

c) $f(x) = (x - 3)(x + 3)$

d) $f(x) = (x + 1)^2$

6. Copy the graph of $y = f(x)$, and sketch the graph of the reciprocal function, $y = \dfrac{1}{f(x)}$.



7. Copy the graph of $y = \dfrac{1}{f(x)}$, and sketch the graph of $y = f(x)$.