

FST

Name \_\_\_\_\_ Date \_\_\_\_\_

**Study Guide: Review of Sections 3-1 to 3-3**

**Section 3-1**

1. Define the following terms and provide examples.

a) Parent Function

b) Continuous Function

c) Discontinuous Function

d) Asymptote

2. Review all of the parent functions (their equations and their graphs) on page 162 of your textbook.

3. Give an equation for the parent function of the following.

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

b)  $y = 2\sqrt{x} + 3$

4. Describe the asymptotes and the points of discontinuity.

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

b)  $f(x) = \frac{1}{x - 3}$

## Section 3-2

5. What is the difference between the translation image and the preimage?

6. Find the image of each point under the given translation.

a)  $(3, 5)$ , down 4 units

b)  $(-2, 4)$ , horizontal translation of 6 units

c)  $(p, q)$ , left 4 units and up 8 units

d)  $(-3, 2)$ ,  $T(x, y) = (x - 2, y + 7)$

7. State the translation that maps  $f$  to  $g$ .

a)  $f(x) = \sqrt{x}$  ;  $g(x) = \sqrt{x + 2}$

b)  $f(x) = |x|$  ;  $g(x) = |x - 1| - 7$

c)  $f(x) = y^3$  ;  $g(x) = (x - 3)^3 + 4$

8. The graph of the given function  $f$  is translated 3 units up and 2 units to the left. Find an equation for its image  $g$ .

a)  $f(x) = |x|$

b)  $f(x) = x^2$

9. Find an equation for the image of  $y = (6.5)^x$  under the given translation.

a)  $T : (x, y) \rightarrow (x - 19, y + 13)$

b)  $T : (x, y) \rightarrow (x - 15, y + 20)$

### **Section 3-3**

10. Fifteen students took a quiz in math class. Below is a chart of raw scores and scaled scores.

<b><u>Raw Scores</u></b>	<b><u>Scaled Scores</u></b>	<b><u>Frequency</u></b>
3	15	1
4	20	3
5	25	2
7	35	7
8	40	2

- a) Find the mean, median, and mode of the raw scores.
- b) Find the mean, median, and mode of the scaled scores.
- c) How do the raw scores compare to the scaled scores?
11. What effect does adding a number  $h$  to each number in a data set have on the range, interquartile range, variance, and standard deviation? Explain.