

2.5 CLASSWORK

Parent Function Worksheet

Name KEY Pd.

#1-7 Give the name of the parent function and describe the transformation represented.

1. $g(x) = x^2 - 1$ Name: $y = x^2$ quadratic
 Transformation: shift down 1

2. $f(x) = 2|x-1|$ Name: $y = |x|$ absolute value
 Transformation: v. stretch by 2; shift right 1

3. $h(x) = \sqrt{x-2}$ Name: $y = \sqrt{x}$ square root
 Transformation: shift right 2

4. $g(x) = x^3 + 3$ Name: $y = x^3$ cubic
 Transformation: shift up 3

5. $g(x) = \frac{1}{x+6}$ Name: $y = \frac{1}{x}$ reciprocal
 Transformation: shift left 6

6. $f(x) = |x+5| - 2$ Name: $y = |x|$ absolute value
 Transformation: shift left 5, down 2

7. $h(x) = \frac{1}{x} - 5$ Name: $y = \frac{1}{x}$ reciprocal
 Transformation: shift down 5

#8-12 Look at the graph to identify the domain and range of the function. Describe the transformation from its parent function.

8. $g(x) = 3\sqrt{x}$ Domain: $[0, \infty)$ Range: $[0, \infty)$
 Transformation: v. stretch by 3

9. $h(x) = -x^2 + 1$ Domain: $(-\infty, \infty)$ Range: $(-\infty, 1]$
 Transformation: reflection over x-axis; up 1

10. $h(x) = -|x - 2|$ Domain: $(-\infty, \infty)$ Range: $(-\infty, 0]$

Transformation: reflection over x-axis; right 2

11. $f(x) = \frac{3}{4}\sqrt{x}$ Domain: $[0, \infty)$ Range: $[0, \infty)$

Transformation: v. shrink by $\frac{3}{4}$

12. $h(x) = 6(x + 9)^2$ Domain: $(-\infty, \infty)$ Range: $[0, \infty)$

Transformation: v. stretch by 6, left 9

#13 - 17 Given the parent function and a description of the transformation, write the equation of the transformed function, $f(x)$.

13. Absolute value—vertical shift up 5, horizontal shift right 3.

$y = |x - 3| + 5$

14. Radical—vertical compression by $\frac{2}{5}$

$y = \frac{2}{5}\sqrt{x}$

15. Cubic—reflected over the x axis and vertical shift down 2

$y = -x^3 - 2$

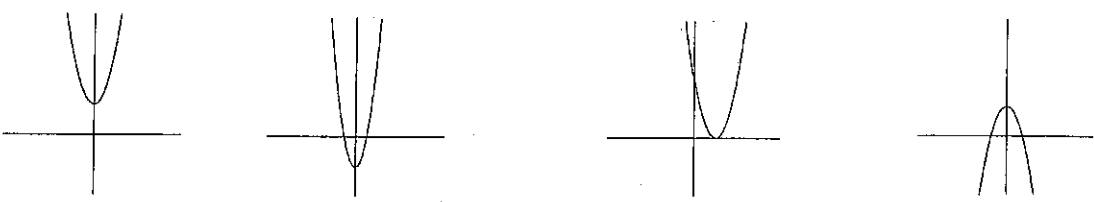
16. Reciprocal—vertical stretch by 8

$y = \frac{8}{x}$

17. Quadratic—vertical compression by .45, horizontal shift left 8.

$y = .45(x + 8)^2$

18. Which graph best represents the function $f(x) = 2x^2 - 2$? **B**



19. Name six parent functions that we discussed. **Answers will vary.**
