

Transformations 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: Quadratic

Transformation: down 1 unit

2. $f(x) = 2|x-1|$ Name: Absolute Value

Transformation: Right 1 unit stretch factor 2

3. $h(x) = \sqrt{x-2}$ Name: Radical

Transformation: Right 2

4. $g(x) = x^3 + 3$ Name: Cubic

Transformation: up 3

5. $g(x) = \frac{1}{x+6}$ Name: Rational

Transformation: left 6

6. $f(x) = |x+5| - 2$ Name: Absolute Value

Transformation: left 5 down 2

7. $h(x) = \frac{1}{x} - 5$ Name: Rational

Transformation: down 5

#8-12 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: stretch factor of 3

9. $h(x) = -x^2 + 1$ Domain: $(-\infty, \infty)$ Range: $[-\infty, 1]$

Transformation: flip over x axis up 1

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

Transformation: flip over x axis right 2

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

Transformation: compression by factor of $\frac{3}{4}$

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

Transformation: stretch by factor of 6
shift left 9 units

#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.

$$f(x) = |x - 3| + 5$$

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

$$f(x) = \frac{2}{5}\sqrt{x}$$

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

$$f(x) = -x^3 - 2$$

16. Reciprocal—vertical stretch by 8

$$f(x) = 8\left(\frac{1}{x}\right) = \frac{8}{x}$$

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

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

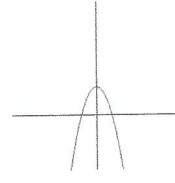
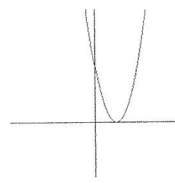
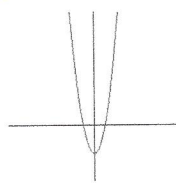
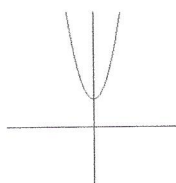
18. Which graph best represents the function $f(x) = 2x^2 - 2$?

a.

b.

c.

d.



19. What type of function can be used to determine the side length of a square if the independent variable is the square's area?

a. cubic

b. linear

c. quadratic

d. radical

$$\frac{A}{x} = \frac{L \cdot W}{y}$$

20. Name six parent functions that we are studying.

LINEAR

QUADRATIC

EXPONENTIAL

RADICAL

CUBIC

LOGARITHMIC

RATIONAL

ABSOLUTE VALUE