Parent function transformations HW Name Answer Bk: _____

 # 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
2. $f(x) = 2|x-1|$ Name: absolute value Transformation: Right 1, Vertical stretched 2 (skinnier)
3. $h(x) = \sqrt{x-2}$ Name: sq. root Transformation: Right 2
4. $g(x) = x^3 + 3$ Name: cubic Transformation: Up 3
5. $g(x) = \sqrt[3]{x-1} + 2$ Name: cube root Transformation: Right 1, up 2
6. $f(x) = |x+5| - 2$ Name: absolute value Transformation: left 5, down 2
7. $h(x) = -1/2(x^2 - 3) + 4$ Name: quadratic Transformation: Compressed 1/2, Right 3, up 4

#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: stretched 3
9. $h(x) = -x^2 + 1$ Domain: $(-\infty, \infty)$ Range: $(-\infty, 1]$ Transformation: Reflected across y, up 1
10. $h(x) = -|x-2|$ Domain: $(-\infty, \infty)$ Range: $(-\infty, 0]$ Transformation: Right 2, reflected across x-axis
11. $f(x) = \frac{3}{4}\sqrt{x}$ Domain: $[0, \infty)$ Range: $[0, \infty)$ Transformation: compressed 3/4
12. $h(x) = 6(x+9)^2$ Domain: $(-\infty, \infty)$ Range: $[0, \infty)$ Transformation: Stretched 6, up 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. $|x-3|+5$
14. Square Root—vertical compression by $\frac{2}{5}$ $\frac{2}{5}\sqrt{x}$
15. Cubic—reflected over the x axis and vertical shift down 2 $-(x^3 - 2)$
16. Cube Root—vertical stretch by 8 $8\sqrt[3]{x} + 8$
17. Quadratic—vertical compression by .45, horizontal shift left 8. $.45(x+8)^2$ ← must be outside

NOT $.45(x^2+8)$