

Transformations of Cubic/Cube Roots

Describe each transformation.

$$g(x) = x^3 - 3$$

Vertical shift down 3

$$h(x) = (x + 1)^3$$

Horizontal shift left 1

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

Hor. shift right 2, vert. stretch by 3

$$k(x) = \frac{1}{4}x^3 + 1$$

Vert. compression by $\frac{1}{4}$, shift up 1

$$m(x) = (2x)^3$$

Horizontal compression by $\frac{1}{2}$

$$n(x) = (\frac{1}{4}x)^3$$

Horizontal stretch by 4

$$p(x) = -x^3$$

Reflect over x-axis

$$q(x) = (-x)^3$$

Reflect over y-axis

Describe each transformation.

$$g(x) = \sqrt[3]{x} - 3$$

Vertical shift down 3

$$h(x) = \sqrt[3]{x + 1}$$

Horizontal shift left 1

$$j(x) = 3\sqrt[3]{x - 2}$$

Hor. shift right 2, vert. stretch by 3

$$k(x) = \frac{1}{4}\sqrt[3]{x} + 1$$

Vert. compression by $\frac{1}{4}$, shift up 1

$$m(x) = \sqrt[3]{2x}$$

Horizontal compression by $\frac{1}{2}$

$$n(x) = \sqrt[3]{\frac{1}{4}x}$$

Horizontal stretch by 4

$$p(x) = -\sqrt[3]{x}$$

Reflect over x-axis

$$q(x) = \sqrt[3]{-x}$$

Reflect over y-axis