Chapter 6 Review (6.1, 6.2, 6.5, 6.6)

Rewrite the expression using rational exponents.

$\sqrt[5]{7^3}$

$\sqrt[9]{-2^8}$

$\sqrt{3^{11}}$

$(\sqrt[3]{10})^2$

Rewrite the expression using radical notation.

$5^{1/7}$

$-6^{4/5}$

$(-6)^{4/5}$

$8^{3/7}$

Evaluate each expression. Try without a calculator at first.

$32^{3/5}$

$-125^{4/3}$

$(-64)^{2/3}$

$81^{5/4}$

Evaluate the following with a calculator. Round your answer to <u>three</u> decimal places.

$\sqrt[5]{-53}$

$36^{4/7}$

$\sqrt[5]{24^7}$

$72^{2/5}$

Simplify the following expressions.

$\sqrt[3]{108x^4y^6}$

$\sqrt[5]{64x^3y^{12}z^{15}}$

$4\sqrt[3]{c^4d} + c\sqrt[3]{125cd}$

$3\sqrt[4]{32} - \sqrt[4]{2}$

Solve the following equations for x. Check for extraneous solutions.

$x^6 - 321 = 408$

$3x^{3/4} = 24$
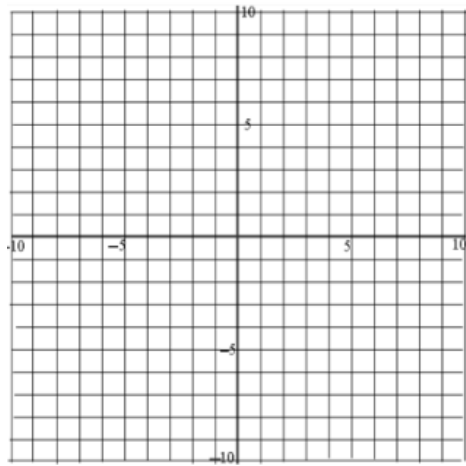
$\sqrt{x^2 - 1} = \sqrt{3x}$

Solve the following equations for x. Check for extraneous solutions.
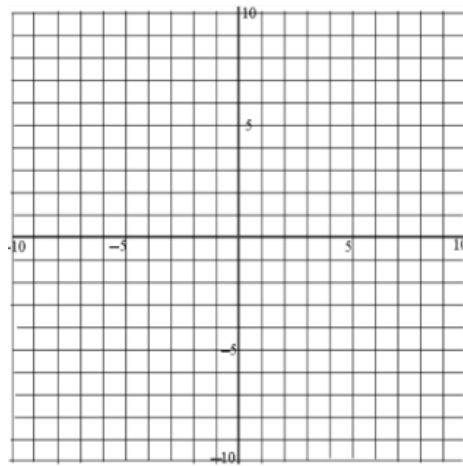
$$x - 3 = \sqrt{x - 1}$$

$$\sqrt{2x + 3} + 2 = \sqrt{6x + 7}$$

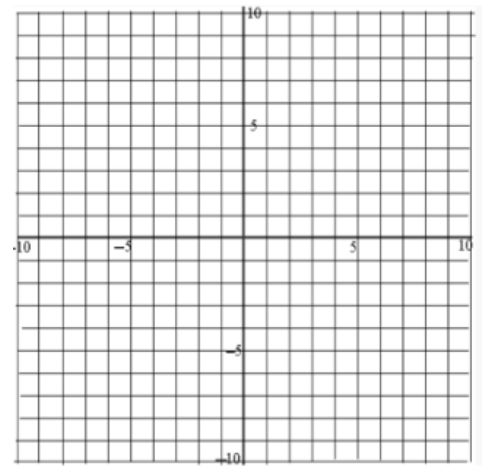Graph the following functions. Identify the domain and range.
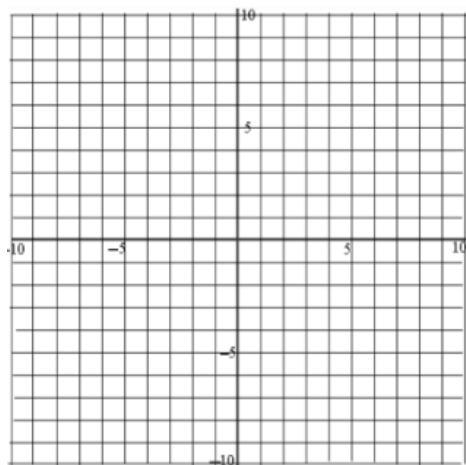
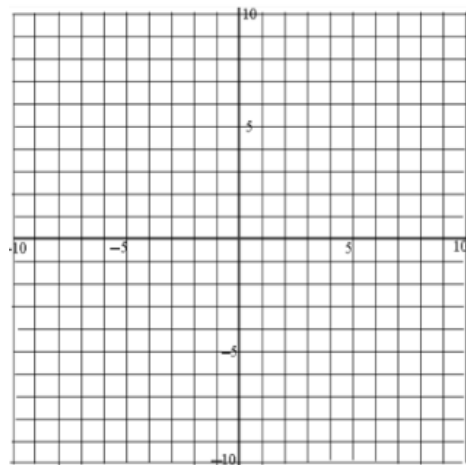$$y = 2\sqrt{x + 3} - 1$$

$$y = \frac{1}{2}\sqrt[3]{x} - 3$$

$$y = -3\sqrt[3]{x} + 1$$

$$y = -\frac{1}{2}\sqrt{x - 2} + 4$$

$$y = -\sqrt{x + 2} - 4$$

$$y = -\sqrt[3]{x + 1} - 4$$