1. If possible, evaluate each radical without the aid of a calculator.

    a) $-\sqrt{64}$

    b) $\sqrt[3]{27}$

    c) $\sqrt[3]{64}$

    d) $\sqrt[5]{-1}$

    e) $\sqrt[4]{\dfrac{1}{16}}$

    f) $\sqrt{\dfrac{121}{225}}$

    g) $\sqrt{1.44}$

    h) $\sqrt[3]{0.027}$

    i) $2\sqrt{81}$

    j) $\sqrt{-4}$

    k) $-\sqrt{0.0009}$

    l) $-\sqrt[5]{-\dfrac{1}{32}}$

2. Simplify each radical. Remember that variables can represent **any real number**.

    a) $\sqrt[6]{(-5)^6}$

    b) $\sqrt[7]{(-3)^7}$

    c) $\sqrt[2015]{a^{2015}}$

    d) $\sqrt[2014]{(a-1)^{2014}}$

    e) $\sqrt[4]{(-x)^8}$

    f) $-\sqrt{x^{16}}$

    g) $\sqrt{16x^2}$

    h) $-\sqrt[3]{-1000x^3}$

    i) $-\sqrt{(x-3)^2}$

    j) $\sqrt{x^2+4x+4}$

    k) $\sqrt[10]{\dfrac{x^{20}}{(1-y)^{10}}}$

    l) $\sqrt[3]{\dfrac{(y-2)^3}{0.000008}}$

3. Use a calculator to approximate the root to the nearest hundredth.

    a) $\sqrt{18}$

    b) $\sqrt[3]{3}$

    c) $\sqrt{0.006}$

    d) $\sqrt[4]{200}$

4. Graph each function and state its domain and range.
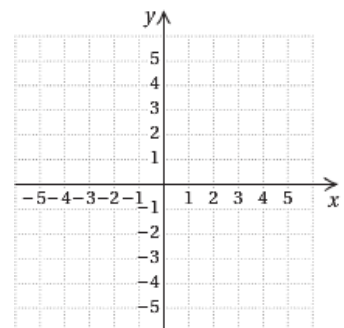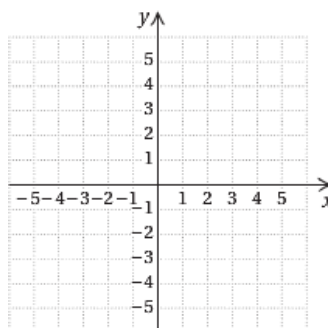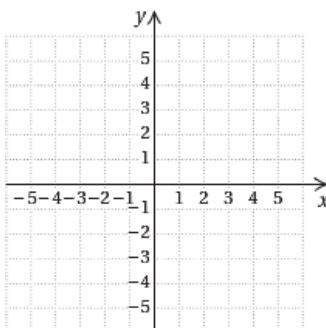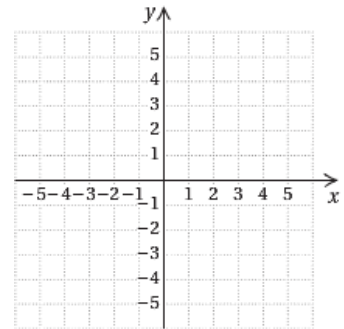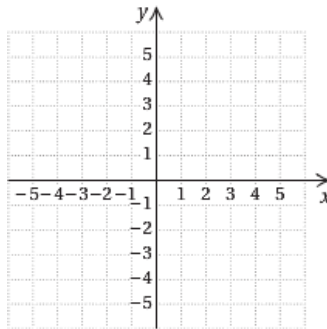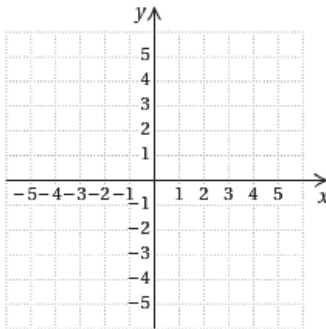
    a) $f(x) = \sqrt{x-2}$

    b) $g(x) = 2\sqrt{x} - 1$

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

    d) $p(x) = \sqrt{2x+1}$

    e) $q(x) = \sqrt{8-4x}$

    f) $r(x) = 2 - \sqrt{x+1}$

5. Find the domain of $f(x) = \frac{\sqrt{x+3}}{\sqrt{2-x}}$.

6. If your test scores are 80 and 100, then the arithmetic mean of your scores is 90. The geometric mean of the scores is a number h such that
$$\frac{80}{h} = \frac{h}{100}.$$
Are you better off with the arithmetic mean or the geometric mean?

7. Find the area of a quadrilateral whose sides are 9, 40, 28, and 15 units and the first two sides are perpendicular, as on the diagram.