

Chapter 2 Radical & Rational Functions**Prerequisite Skills**

1. Express each power as an equivalent radical.

a) $x^{\frac{2}{3}}$ b) $45^{0.5}$

c) $\left(\frac{1}{24}\right)^{\frac{3}{2}}$ d) $(g^3)^{\frac{1}{2}}$

2. Express each radical as a power.

a) $\sqrt{x^5}$ b) $\sqrt[3]{x^3}$

c) $\sqrt[3]{x^2y^2}$ d) $a^3b\sqrt{xy^5}$

3. Convert each mixed radical to an equivalent entire radical.

a) $3\sqrt{6}$ b) $5\sqrt[3]{2}$

c) $-4\sqrt{5}$

4. Convert each entire radical to a mixed radical in simplest form.

a) $\sqrt{40}$ b) $\sqrt[3]{18a^3}$

c) $-\sqrt{75b^9}$ d) $\sqrt[3]{54x^9y^6}$

5. Evaluate without the aid of a calculator.

a) $\sqrt{225}$ b) $\sqrt[3]{125}$

c) $\sqrt{4900}$ d) $\sqrt[3]{8000}$

6. Express each product in simplest form.

a) $(\sqrt{3})(\sqrt{6})$

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

c) $(4\sqrt{3}-7)^2$

d) $(3\sqrt{x}-5\sqrt{y})(\sqrt{x}+2\sqrt{y})$

7. Identify any restrictions on the variable in each expression or equation.

a) $7\sqrt{x}$

b) $8\sqrt{x-4}$

c) $\frac{5x+1}{x\sqrt{x+2}}$

d) $\sqrt{z}-4=5$

e) $-2\sqrt{3x+1}=4$

f) $d-1=\sqrt{3d+5}$

8. State whether each equation is true or false. If false, rewrite the equation so it is true.

a) $\sqrt{25}=\pm 5$

b) $(-3)^2=-9$

c) $-2=4$

9. Solve each radical equation.

a) $5-\sqrt{3x}=1$

b) $\sqrt{4x+1}+3=8$

c) $\sqrt{x^2}=x$

d) $\sqrt{7y+25}-y=1$

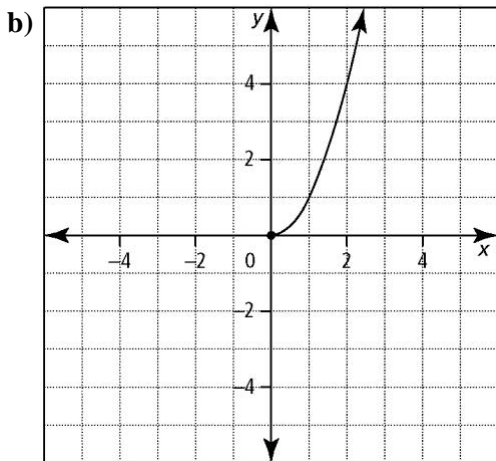
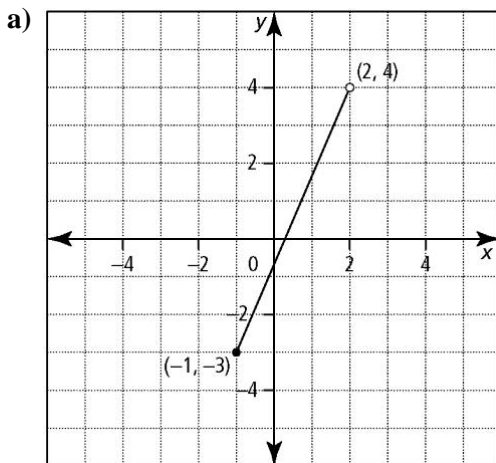


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10. Determine the domain and range of the function shown in each graph.



11. Express each domain using another notation.

a) $\{x \mid x \geq -2, x \in \mathbb{R}\}$

b) $\{x \mid -5 < x \leq 3, x \in \mathbb{R}\}$

c) $[1.4, 6]$

d) $(-\infty, 4)$

12. Sketch the graph of a function having a domain of $(-3, 2]$ and a range of $(0, 5]$.

13. Solve each equation for n . Leave each answer in simplest radical form.

a) $7n - 3 = -4(n - 1) + 5$

b) $2n^2 - n - 3 = 0$

c) $n^2 = 4n + 6$

