

1. Simplify each radical. Assume that all variables represent positive real numbers.

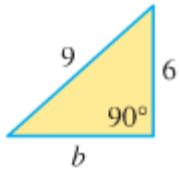
- a) $\sqrt{20}$ b) $\sqrt[3]{-108}$ c) $\sqrt{32a^2b}$ d) $-\sqrt{45x^8y^{15}}$
 e) $\sqrt[40]{x^{20}}$ f) $\sqrt[12]{x^{30}}$ g) $\sqrt{\frac{49}{x^2}}$ h) $\sqrt[4]{\frac{625x^6}{16}}$
 i) $\sqrt[5]{p^{14}q^9r^{23}}$ j) $\sqrt[6]{\frac{p^9q^{24}}{r^{18}}}$ k) $\sqrt[4]{\frac{81}{256}t^{12}u^9}$ l) $-2\sqrt{162x^4y^5}$

2. Perform the operation and simplify the resulting radical if possible. Assume that all variables represent positive real numbers.

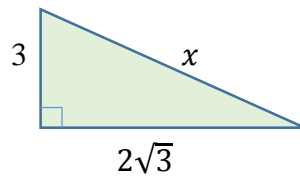
- a) $\sqrt{12} \cdot \sqrt{6}$ b) $\sqrt[3]{5x} \cdot \sqrt[3]{5x^2}$ c) $\sqrt{24} \cdot \sqrt{75}$ d) $\sqrt{2x^3y} \cdot \sqrt{12xy}$
 e) $\frac{\sqrt{90}}{\sqrt{5}}$ f) $\frac{\sqrt[3]{16x^2}}{\sqrt[3]{2x}}$ g) $\sqrt{x} \cdot \sqrt[3]{x^2}$ h) $\frac{\sqrt[4]{x^3}}{\sqrt{x}}$

3. Find the unknown length.

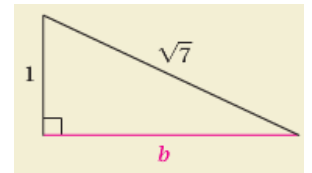
a)



b)



c)



4. Find the distance between the given points.

- a) $(-1, 5)$ and $(3, -7)$ b) $(-5, 4\sqrt{5})$ and $(-3, 4\sqrt{5})$ c) $(\sqrt{2}, 5\sqrt{3})$ and $(-\sqrt{2}, 3\sqrt{3})$

5. Find all ordered pairs on the y -axis of a Cartesian coordinate system that are 5 units from the point $(3, 0)$.

6. A television whose screen has a 25-in. diagonal has a height of 15 in. What is its width?

7. The diagonal of a square has length $8\sqrt{2}$ ft. Find the length of a side of the square.