

Date _____

1. Without using your calculator, find the square roots.

a) $\sqrt{25}$

b) $\sqrt{x^2}$

d) $\sqrt{9x^{10}}$

2. Without using your calculator, find the following cube roots.

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

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

c) $\sqrt[3]{8x^{12}}$

d) $\sqrt[3]{-27}$

3. In your own words, why do you think you can get a real number answer for $\sqrt[3]{-27}$ but not $\sqrt{-4}$?

4. Simplify. Assume that variables represent positive real numbers.

a) $\sqrt{400}$

b) $\sqrt{\frac{9}{25}}$

c) $-\sqrt{16y^6}$

5. Find each root. Assume that all variables represent nonnegative real numbers.

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

b) $\sqrt[3]{-8x^{15}}$

c) $\sqrt[4]{81x^{12}}$

6. Use your calculator to find the following roots. Round your answers to three decimal places.

a) $\sqrt{123}$

b) $\sqrt[4]{219.4}$

c) $\sqrt[3]{-228}$