

## Nth Roots and Rational Exponents Homework

NAME \_\_\_\_\_

1.) Find the 5<sup>th</sup> root of 243.

2.) Write the expression  $(-4)^{\frac{1}{3}}$  in radical form.

3.) Write the expression  $(\sqrt[8]{17})^5$  in exponential form.

Evaluate each expression without using a calculator.

4.)  $8^{\frac{2}{3}}$

5.)  $(-64)^{\frac{1}{3}}$

6.)  $16^{\frac{3}{4}}$

7.)  $(\sqrt[5]{32})^3$

8.)  $(\sqrt[3]{-125})^2$

9.)  $(\sqrt[2]{16})^3$

Evaluate each expression using a calculator. Round your answer to two decimal places when appropriate.

10.)  $620^{\frac{2}{5}}$

11.)  $(\sqrt[2]{50})^5$

12.)  $(\sqrt[3]{16})^{-4}$

13.)  $62^{-\frac{1}{3}}$

14.) What are the values of  $x$  that are solutions to the equation  $x^2 + 5x + 4 = 0$ ?

a.  $x = -4, -1$

b.  $x = 1, 4$

c.  $x = 2, 3$

d.  $x = 0, 1$

e.  $x = -1, 4$

15.) Which of the following is a quadratic equation that has  $2/3$  as its only solution?

a.  $9x^2 + 12x + 4 = 0$

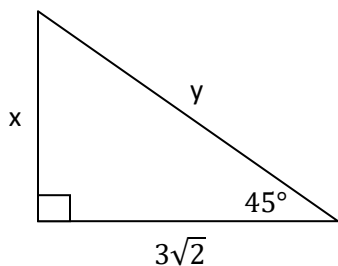
b.  $9x^2 - 12x + 4 = 0$

c.  $9x^2 + 4 = 0$

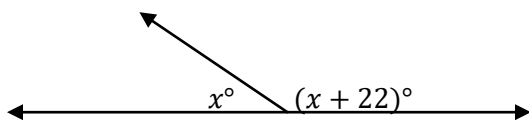
d.  $9x^2 - 4 = 0$

e.  $9x^2 + 6x + 4 = 0$

16.) Find  $x$  and  $y$ .



17.) Find  $x$ .



## Nth Roots and Rational Exponents Homework

NAME ANSWER KEY

1.) Find the 5<sup>th</sup> root of 243.    3

2.) Write the expression  $(-4)^{\frac{1}{3}}$  in radical form.     $\sqrt[3]{(-4)}$

3.) Write the expression  $(\sqrt[8]{17})^5$  in exponential form.     $17^{5/8}$

Evaluate each expression without using a calculator.

4.)  $8^{\frac{2}{3}}$     4

5.)  $(-64)^{\frac{1}{3}}$     -4

6.)  $16^{\frac{3}{4}}$     8

7.)  $(\sqrt[5]{32})^3$     8

8.)  $(\sqrt[3]{-125})^2$     25

9.)  $(\sqrt[2]{16})^3$     64

Evaluate each expression using a calculator. Round your answer to two decimal places when appropriate.

10.)  $620^{\frac{2}{5}}$     13.09

11.)  $(\sqrt[2]{50})^5$     17,677.67

12.)  $(\sqrt[3]{16})^{-4}$     0.02

13.)  $62^{-\frac{1}{3}}$     0.25

14.) What are the values of  $x$  that are solutions to the equation  $x^2 + 5x + 4 = 0$ ?

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15.) Which of the following is a quadratic equation that has  $2/3$  as its only solution?

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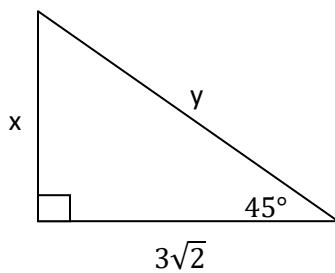
b.  $9x^2 - 12x + 4 = 0$

c.  $9x^2 + 4 = 0$

d.  $9x^2 - 4 = 0$

e.  $9x^2 + 6x + 4 = 0$

16.) Find  $x$  and  $y$ .  $x = 3\sqrt{2}, y = 6$



17.) Find  $x$ .  $x = 79$

