

3.16 Quiz: Rational exponents and complex numbers**A2.A.APR.6**

1. Square both sides of the equation and solve for x .

(a) $\sqrt{x+7} = 6$

(b) Check your solution.

2. Solve for x and check.

(a) $\sqrt{4x+5} + 5 = 14$

(b) Check your solution.

3. Write each expression in the form $a + bi$ with a, b real numbers.

Given $s = 7 - 3i$ and $t = -2 + i$.

(a) $s + t =$

(b) $s - t =$

(c) $st =$

HSN.RN.2 Expressions with radicals and rational exponents

4. Simplify each radical expression.

(a) $\sqrt{49} =$

(c) $\sqrt{-45} =$

(b) $\sqrt{32} =$

(d) $\frac{\sqrt{-12}}{\sqrt{3}} =$

5. Simplify each expression.

(a) $8^{\frac{2}{3}} =$

(b) $\left(\sqrt{\frac{4}{9}}\right)^3 =$

6. Rewrite each expression as a fractional exponent in simplest terms.

(a) $\sqrt[3]{3} =$

(c) $\sqrt[4]{x^3} =$

(b) $\frac{1}{\sqrt[2]{3}} =$

(d) $\frac{1}{(\sqrt[4]{x})^2} =$

7. Rewrite each expression with fractional exponent as a radical.

(a) $3^{\frac{1}{2}} =$

(c) $x^{\frac{1}{3}} =$

(b) $3^{-\frac{2}{3}} =$

(d) $x^{-\frac{2}{3}} =$

8. The expression $2 - \frac{x-1}{x+2}$ is equivalent to

(a) $1 - \frac{3}{x+2}$

(c) $1 - \frac{1}{x+2}$

(b) $1 + \frac{3}{x+2}$

(d) $1 + \frac{1}{x+2}$

9. Find all of the values of x that make the equation true.

$$\frac{3}{x-4} = \frac{x-5}{x}$$

10. Select all of the solutions to $(x-4)^2 = 7$.

(HSN.CN.2 Complex numbers)

(a) $x = 4 + 7i$

(d) $x = 4 - 7 = -3$

(b) $x = 4 - 7i$

(e) $x = 4 + 7 = 11$

(c) $x = 4 - \sqrt{7}$

(f) $x = 4 + \sqrt{7}$