

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

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

(a)  $\sqrt{x+9} = 4$

(b) Check your solution.

2. Solve for  $x$  and check.

(a)  $\sqrt{2x+1} - 7 = -2$

(b) Check your solution.

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

Given  $s = -4 - i$  and  $t = 5 + 3i$ .

(a)  $s + t =$

(b)  $s - t =$

(c)  $st =$

4. Simplify each expression.

(HSN.RN.2 Rational exponents)

(a)  $27^{\frac{2}{3}} =$

(b)  $\left(\sqrt{\frac{1}{4}}\right)^{-3} =$

5. Simplify each radical expression.

(a)  $\sqrt{81} =$

(c)  $\sqrt{-50} =$

(b)  $\sqrt{18} =$

(d)  $\frac{\sqrt{-8}}{\sqrt{2}} =$

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

(a)  $\sqrt[2]{7} =$

(c)  $\sqrt[3]{x^2} =$

(b)  $\frac{1}{\sqrt[2]{7}} =$

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

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

(a)  $7^{\frac{1}{3}} =$

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

(b)  $7^{-\frac{1}{2}} =$

(d)  $x^{-\frac{5}{3}} =$

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