

4.9 Test: Cumulative year-to-date standards

1. Simplify to standard form. *A.APR.1 Perform operations with polynomials*

$$(3x^3 - 3x^2 - 2) - (-2x^3 + 2x^2 - 3x - 5)$$

2. Select each correct equation.

(a) $x^2 - 12x - 36 = (x - 6)(x + 6)$

(d) $x^2 + 36 = (x - 6)(x + 6)$

(b) $x^2 - 12x + 36 = (x - 6)^2$

(e) $x^3 + y^3 = (x + y)(x^2 - xy + y^2)$

(c) $x^2 + 12x + 36 = (x + 6)^2$

(f) $x^3 - y^3 = (x - y)(x^2 + xy + y^2)$

3. Write down the solutions to $x(x + 1)(2x - 3) = 0$. *A.APR.3 Find zeros of polynomials*

4. Solve: $\frac{3}{x} = x - 2$

A.REI.2 Solve rational and radical equations

5. Solve for x and check.

(a) $\sqrt{x + 25} + 11 = 15$

(b) Check your solution.

6. Write a recursive definition of the sequence

F.BF.2 Sequences

$$a_1 = 1, a_2 = 3, a_3 = 9, a_4 = 27, \dots$$

7. Simplify to the form $a + bi$ with a, b real numbers.

N.CN.2 Complex numbers

(a) $(3 - 4i) - (2 + 8i)$

(b) $(2 - i)(5 - 3i) =$

8. Simplify each expression, using imaginary numbers as necessary.

(a) $\sqrt{-49} =$

(b) $\frac{1}{2}\sqrt{-12} =$

9. Rewrite each expression as a radical.

N.RN.2 Radicals and rational exponents

(a) $4^{\frac{1}{3}} =$

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

10. Rewrite each expression as a fractional exponent. $x > 0$

(a) $\sqrt{5} =$

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