

**3.8 Quiz: Working with exponents**

**A.SSE.3c Exponent properties**

*Do Not Use a Calculator*

1. Select all of the solutions to  $x^2 = 36$ .

(a)  $x = 4 \times 9$

(d)  $x = -6$

(b)  $x = 2 \times 18$

(e)  $x = 18$

(c)  $x = 6$

(f)  $x = -18$

2. Find the value of each variable that makes the equation true.

(a)  $\frac{5^9}{5^5} = 5^b$        $a =$

(d)  $3^e = \frac{1}{9}$        $d =$

(b)  $11^c = 1$        $b =$

(e)  $7^5 \cdot 7^2 = 7^a$        $e =$

(c)  $(2^3)^4 = 2^d$        $c =$

(f)  $4^5 \cdot f^5 = 8^5$        $f =$

3. Evaluate each expression.

(a)  $\frac{1}{5} \cdot 30 =$

(c)  $\frac{4}{7} \cdot 12 \cdot \frac{7}{4} =$

(b)  $\frac{5}{6} \cdot 12 =$

(d)  $\frac{3}{5} \cdot \frac{7}{3} \cdot 10 =$

4.  $s = 2x - 1$  and  $t = 5x + 7$ .      (AI-A.APR.1 Add, subtract, & multiply polynomials)

For each expression, write an equivalent expression and simplify.

(a)  $s + t =$

(b)  $s - t =$

(c)  $st =$

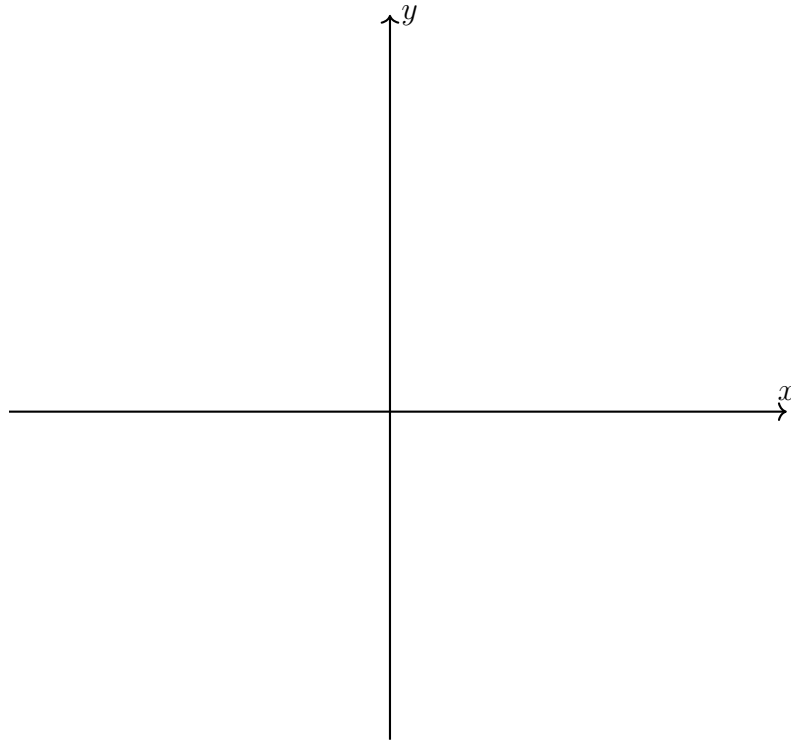
**A2-F.BF.2 Write arithmetic and geometric sequences with recursive formulas**

5. Given the geometric sequence beginning  $a_1 = 9$ ,  $a_2 = 3$ ,  $a_3 = 1$ ,  $a_4 = \frac{1}{3}, \dots$

(a) Write a recursive definition of the sequence.

(b) Write a formula expression of the sum of the first 10 terms of the sequence. (You do not need to calculate the sum's value.)

6. Given the function  $f(x) = (3x + 10)(x + 1)(x - 2)$ . (AII-F.IF.7c Graph polynomials)



(a) Sketch a graph of the function.

(b) Mark and label all  $x$ -intercepts of the graph.

(c) Calculate the function's  $y$ -intercept and mark it on the graph.