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) $\dfrac{5^9}{5^5} = 5^a$ $a =$ (d) $3^d = \dfrac{1}{9}$ $d =$

   (b) $11^b = 1$ $b =$ (e) $7^5 \cdot 7^2 = 7^e$ $e =$

   (c) $(2^3)^4 = 2^c$ $c =$ (f) $4^5 \cdot f^5 = 8^5$ $f =$

3. Evaluate each expression.

   (a) $\dfrac{1}{5} \cdot 30 =$ (c) $\dfrac{4}{7} \cdot 12 \cdot \dfrac{7}{4} =$

   (b) $\dfrac{5}{6} \cdot 12 =$ (d) $\dfrac{3}{5} \cdot \dfrac{7}{3} \cdot 10 =$

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 $a_1 = 9$, $a_2 = 3$, $a_3 = 1$, $a_4 = \frac{1}{3}, \ldots$

   (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)
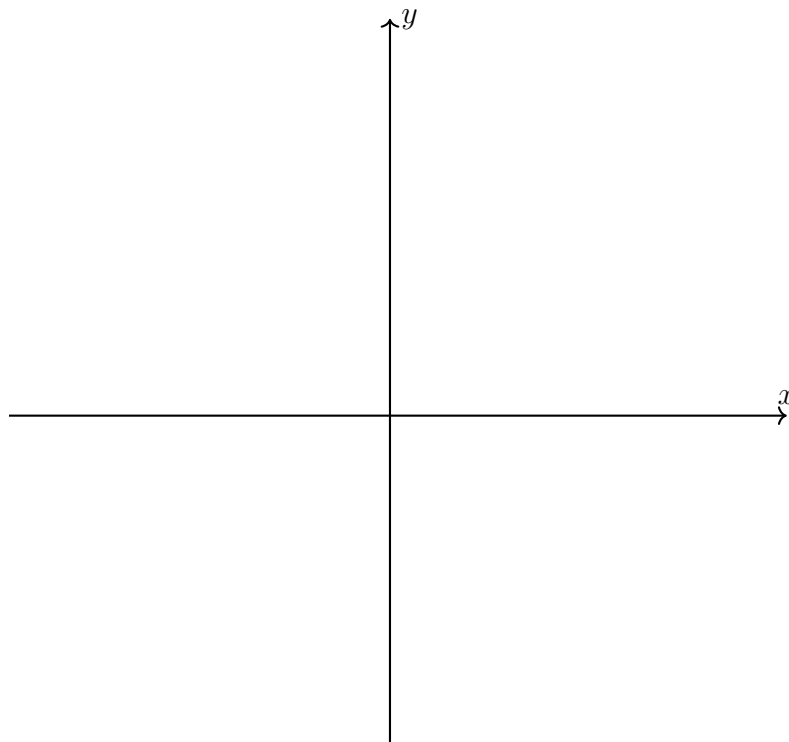
   (a) Sketch a graph of the function.

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

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