

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) $x = 4 \times 9$

(b) $x = 2 \times 18$

(c) $x = 6$

(d) $x = -6$

(e) $x = 18$

(f) $x = -18$

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

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

$a = 4$

(d) $3^e = \frac{1}{9}$

$d = -2$

(b) $11^c = 1$

$b = 0$

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

$e = 7$

(c) $(2^3)^4 = 2^d$

$c = 12$

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

$f = 2$

3. Evaluate each expression.

(a) $\frac{1}{5} \cdot 30 = 6$

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

(b) $\frac{5}{6} \cdot 12 = 10$

(d) $\frac{3}{5} \cdot \frac{7}{3} \cdot 10 = 14$

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) $s + t = (2x - 1) + (5x + 7) = 7x + 6$

(b) $s - t = (2x - 1) - (5x + 7) = -3x - 8$

(c) $st = (2x - 1)(5x + 7) = 10x^2 + 14x - 5x - 7$
 $= 10x^2 + 9x - 7$

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.

$$r = 1/3$$

$$a_1 = 9$$

$$a_n = \frac{1}{3} a_{n-1}$$

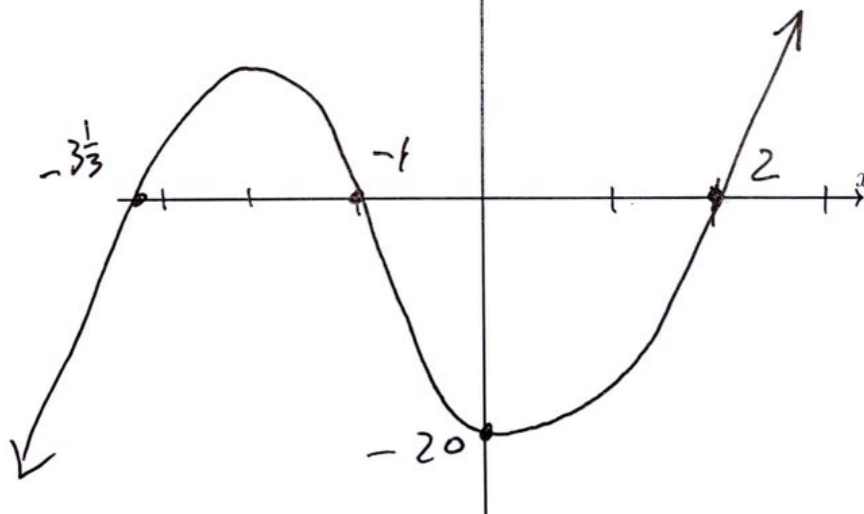
(b) Write a formula expression of the sum of the first 10 terms of the sequence. (You do not need to calculate the sum's value.)

$$S_{10} = 9 \left(\frac{1 - (1/3)^{10}}{1 - 1/3} \right)$$

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

$$-\frac{10}{3} = -3\frac{1}{3} \quad -1 \quad 2$$

$$(10)(1)(-2) = -20$$



- Sketch a graph of the function.
- Mark and label all x -intercepts of the graph.
- Calculate the function's y -intercept and mark it on the graph.