

5/22/2013

1. Simplify each of the following:

(a) $40 + 10 \div 5 + 3 \cdot (-2^2)$

(c) $-9 - 5 \left[\frac{11 - 9(-1)}{4(-5) + 2(5)} \right]$

(e) $\frac{7}{12} \div \frac{5}{6}$

(b) $-\left| -\left(-\left(-\frac{2}{3} + 1\right)\right) \right|$

(d) $\frac{4}{7} - \frac{5}{6}$

(f) $5x + 3(-2x + 7) - 24$

2. Evaluate each of the following:

(a) $4x - 3$ if $x = 2$

(b) $3x^2 - 2xy$ if $x = -1$ and $y = 3$

(c) $x^3 - 5(x - 2y)$ if $x = 1$ and $y = 2$

3. Perform the following set operations:

(a) $\{2, 3, 7, 9\} \cup \{3, 5, 7, 11\}$

(b) $\{a, b, c, d, e\} \cap \{a, e, i, o, u\}$

(c) $(\{1, 2, 3, 4\} \cup \{a, b, c, d\}) \cap \{1, b, 3, f\}$

4. Place the appropriate symbol ($<$, $>$, or $=$) to make the statement true:

(a) -9 -4

(b) $|-9|$ $|-4|$

(c) $|4 - 9|$ $|9 - 4|$

5. Write each of the following in scientific notation (perform the indicated operations, when appropriate):

(a) 0.00002718

(b) 45,375.467

(c) $(4.3 \times 10^4)(2 \times 10^{-2})$

(d) $\frac{1.8 \times 10^5}{2 \times 10^{-3}}$

6. Simplify each of the following algebraic expressions:

(a) $7(x - 2) - (3x - 7)$

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

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

7. Simplify each of the following using the properties of exponents. Your answer should contain only positive exponents.

(a) -2^4

(d) $\frac{3^4}{3^8}$

(g) $x^{-5} \cdot x^3$

(j) $(-3x^2y^{-4})^{-2}$

(b) 25^0

(e) $x^5 \cdot x^3$

(h) $\frac{y^5}{y^{-3}}$

(k) $\frac{3x^2y^{-3}z}{9x^{-1}y^4}$

(c) $3^{-3} \cdot 3^2$

(f) $(x^5)^3$

(i) $(-3x^2y^4)^2$

(l) $\left(\frac{7x^3y^2z^{-1}}{21x^{-2}yz^3}\right)^{-1}$