

1. List all factors of 90.
2. Perform the division with remainder: $2008 \div 17 =$
3. Simplify each of the following.

(a) $|-3^3 - 2|-5 - 2(-4)| =$

(b) $\sqrt{-4^2 - (-1)^4 + 2 \cdot 3^2 \div 2 \cdot 6 - 1} =$

(c) $|(-3)^2 + |(-6)^2 + (-2)^3| - 2| + 1 =$

4. Simplify each of the following.

(a) $-(3a - 8b) - (5a - b) =$

(b) $5x - 3(2x - y) =$

(c) $-y + 2(3x - y) - (2x - y) + 2(-2x + y) =$

(d) $(3a - 5)^2 =$

(e) $(3a - 5)(3a + 5) =$

(f) $(3a - 1)(3a + 9a^2 + 1) =$

5. Evaluate the algebraic expression $\frac{-x + 2x^2 - 1}{x - 1}$ if

(a) $x = 5$

(b) $x = -5$

(c) $x = 1$

(d) $x = -1$

6. Solve each of the following equations. Make sure to check your solutions.

(a) $3(x - 1) - 5(3x + 2) = -13(x + 1)$

(b) $4(x - 3) - 2(x - 1) = x - 2(4 - x)$

(c) $5(x - 1) - 2(x + 4) = 4 - 3(3 - x)$

(d) $(b + 5)(b - 2)(2b + 11) = 0$

(e) $\frac{x + 2}{4} - \frac{x - 3}{5} = 20 - x$

(f) $\frac{2x - 1}{3} - \frac{2x + 1}{5} = \frac{4x - 8}{15}$

(g) $(2x + 1)(2x - 5) = (x - 2)(4x - 1)$

(h) $8x = 2x^3$

7. Solve each of the following inequalities. Graph the solution set.

(a) $2(x - 3) - 5(x - 1) > -x + 3$

(b) $\frac{3x - 4}{5} - \frac{x - 4}{2} \leq \frac{2x + 4}{10}$

(c) $2(x - 3) - 5(2x - 2) \geq 10 - 2x$

8. Completely factor each of the following expressions.

(a) $10x - 1000x^3 =$

(b) $-75m^2 + 27 =$

(c) $2x^4y^3 - 32y^3 =$

9. Consider the equation $-x + y - 3x^2 = -x^2 - 6(x + 1) + x^3$. For each of the following points given, determine whether it is on the graph of the equation or not.

(a) $(2, -1)$

(b) $(-1, 0)$

(c) $(3, 24)$

(d) $(-2, 4)$

(e) $(-3, -1)$