

1. Simplify each of the following.

(a)  $\frac{x^2 - 3x}{x^2 + 4x - 21} \cdot \frac{6x + x^2 - 7}{x^2 - x} =$

(b)  $\frac{1 - 9p^2}{-p^2 + 8p - 15} \div \frac{3p - 1}{p - 3} =$

(c)  $3\sqrt{7} + 2\sqrt{63} - 3\sqrt{112} =$

(d)  $(2 - \sqrt{7})(2 + \sqrt{7}) =$

(e)  $(7 - 3\sqrt{5})^2 =$

(f)  $\frac{3}{\sqrt{19} + 4} =$

2. Solve each of the following equations.

(a)  $\frac{5x + 1}{28} + \frac{12x - 6}{56} = \frac{x - 1}{14}$

(b)  $8x^2 + x^3 = 33x$

(c)  $2(x - 3) - \frac{x}{2} = \frac{3}{2}(x - 4)$

3. Solve the formula  $C = \frac{5}{9}(F - 32)$  for  $F$ .

4. Solve each of the following inequalities.

(a)  $3(x - 5) \leq 5x + 7$

5.  $-9(x - 2) + 3(7x - 5) < \frac{12x + 3}{2}$

6. Graph the straight lines determined by  $y = 2x - 3$  and  $x + 6 = 2y$ . Use your graph to find the coordinates of the intersection.

7. Find the value of  $N$  if the straight line  $2x + 5y = N$  passes through the point  $(-9, 3)$ .

8. Find the value of  $N$  if the straight line  $Nx + y = -8$  passes through the point  $(5, 2)$ .

9. A soda costs \$ 1.20 and a sandwich costs \$ 2.50. We purchased 23 items for a total of \$ 38. How many sodas and sandwiches did we purchase?