

1. Review of fractions.

(a) Find $\frac{4}{9}$ of 72.

(b) Find $\frac{9}{4}$ of 72.

(c) Write $\frac{5}{8}$ with denominator 40.

(d) Reduce $\frac{100}{120}$ to lowest terms.

(e) Convert $-5\frac{3}{7}$ to an improper fraction.

(f) Which number is larger, $\frac{11}{13}$ or $\frac{15}{17}$?

(g) Find the average of $\frac{3}{4}$, $-2\frac{2}{5}$, $\frac{7}{10}$, and $2\frac{19}{20}$.

(h) Evaluate $\frac{\frac{1}{a} + \frac{1}{b}}{\frac{1}{b} - \frac{1}{a}}$ if $a = 2$, $b = 3$.

2. Simplify each of the following.

(a) $3\sqrt{27} - 5\sqrt{147} + 4\sqrt{243} =$

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

(c) $(\sqrt{6} + 1)(3\sqrt{6} - 2) =$

(d) $3\sqrt{4}(4\sqrt{6} + 2\sqrt{2}) =$

(e) $\frac{1}{\sqrt{5} - 2} =$

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

(a) $\left| \frac{x-3}{2} \right| - 1 = 1$

(b) $6x^2 + x^3 = 567x$

(c) $|3x + 1| - 3 = 5$

(d) $(x-1)(x-2) + 7 = 4 - (3-x)(x-5)$

4. Solve the following system of linear equations.

$$3x - 2y = -5$$

$$3x + y = 7$$

5. Solve the inequality $\frac{3-4x}{3} - \frac{2x-3}{7} \geq -x+7$

6. If $f(x) = \frac{1}{2}x + 4$, find the coordinates of the
- (a) x -intercept.
 - (b) y -intercept.
7. Find an equation of the straight line that is parallel to $y = 3x - 7$ and passes through the point $(3, 11)$.
8. Find an equation of the straight line that is perpendicular to $2x - 7y = 42$ and passes through the point $(2, 2)$.
9. Find an equation of the line that passes through the points $(-1, 8)$ and $(4, -7)$.