

1. Simplify each of the following.

a) 3^{-2} b) a^5a^{-3} c) $\frac{x^4}{x^{-3}}$

2. Simplify each of the following compound inequalities.

a) $m \geq -3$ and $5 > m$ c) $x < 10$ and $3 \leq x$
b) $m \geq -3$ or $5 > m$ d) $x < 10$ or $3 \leq x$

3. Solve for a .

a) $ax + by = c$ b) $\frac{5}{a} - \frac{3}{b} = m$

4. Re-write each of the following decimals as a fraction of two integers. You do NOT have to bring the fraction to lowest terms.

a) 3.08 b) $4.\bar{5} = 4.555555\dots$ c) $0.4\bar{35} = 0.4353535\dots$

5. Factor by completing the square.

a) $8x + 3x^2 - 3$ b) $9x^2 - 12x + 29$ c) $5x + 21x^2 - 4$ d) $4x^2 - 4x + 1$

6. Graph the lines $x + y = 7$ and $x - 3y = -1$ in the same coordinate system.

- a) Use your graph to find the coordinates of the point where the graphs intersect each other.
b) Use algebraic methods to check your solution.

7. Solve each of the following equations.

a) $|3x - 1| = 8$ b) $\frac{1}{2}|x - 1| - 5 = 2$ c) $\frac{1}{2}|x - 1| + 5 = 2$

8. The sum of negative thirteen and twice a number is eleven greater than five times the number.