

1. Simplify each of the following.

(a) $\sqrt{48} - 2\sqrt{75} + 5\sqrt{12} =$

(b) $\frac{\sqrt{200}}{\sqrt{8}} =$

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

(d) $(\sqrt{5} + 4)(\sqrt{5} - 2) =$

(e) $\frac{50 - 2x^2}{x^2 - 4x - 5} =$

(f) $\frac{3}{m + 5} - \frac{4m + 2}{4m + m^2 - 5} =$

(g) $(-3a)^2(-2a^2b)^3 =$

(h) $x(3 - 2x) - (2x - 1)^2 =$

2. Simplify each of the following.

(a) $3(4)^2 =$

(b) $(3 \cdot 4)^2 =$

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

(d) $(3x - 6)^2 =$

(e) Based on the previous problems, write a number in the box to make the statement shown below true.

$$(5a - 10)^2 = (5(a - 2))^2 = \square(a - 2)^2$$

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

(a) $x^3 = 12x^2 + 3213x$

(b) $x^3 - 2x^2 - 35x = 0$

(c) $2x^2 - 32x = 0$

4. Graph the straight lines determined by the equations $3x + y = 0$ and $x + y = 4$.

(a) Use your graph to find the coordinates of the point where the lines intersect.

(b) Use algebraic methods to check your answer.

5. Graph the straight lines $y = 2x - 3$ and $y = -(2x - 3)$ in the same coordinate system.

6. Solve each of the following systems of linear equations.

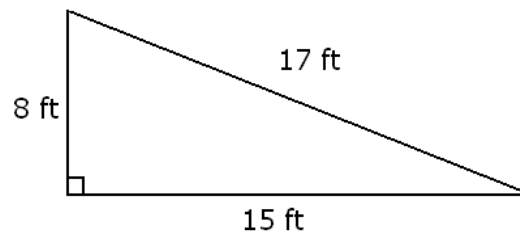
(a)

$$\begin{aligned}2x - 5y &= 8 \\3x + 2y &= -7\end{aligned}$$

(b)

$$\begin{aligned}2x - 3y &= 6 \\x &= \frac{3}{2}y - 1\end{aligned}$$

7. Consider the right triangle shown on the picture below.



(a) Compute the perimeter of the triangle. Include units in your computation and answer.

(b) Compute the area of the triangle. Include units in your computation and answer.

8. There are chickens and cows on a farm. All together, there are 38 heads and 112 legs. How many chickens, how many cows?

9. A school purchases tickets to a show. A child ticket costs \$7 and an adult ticket costs \$12. The school has paid a total of \$510 for 65 tickets. How many of the 65 tickets were for adults?