

- Compute the area of a right triangle with sides 34 cm, 16 cm, and 30 cm long. Include units in your computation and answer.
- Graph the line $4x - 3y = -7$
 - Graph the lines $2x - y = 5$ and $x + 3y = 6$ in the same coordinate system. Use your graph to find the coordinates of the point where the lines intersect.
- Simplify each of the following.
 - $|11 - 3|-5|$
 - $|11 - |3 - 5||$
 - $|11|-3-5|$
 - $12 - 2(5 - 3(-2))$
 - $-3^2 - 12 \div 2 \cdot 3$
 - $\frac{18 - 5 + 3}{-2^2 - (-2)^2}$
 - $|3 - |-7 + 2||$
 - $\frac{6 - 2(-3)}{-2^2 - (-1)}$
- Simplify each of the following.
 - $2(x - 3)^2 - (2x - 1)(3x + 5)$
 - $\frac{(-2ax^3)^3(-3axa^2)^2}{(-2a^4x)^2}$
 - $\frac{2x - x^2 + 3}{x^2 - 9}$
 - $\frac{x^2 - 4x}{x^2 - 4} \cdot \frac{8x + 2x^2 - 24}{x^2 + 6x}$
 - $\frac{3}{x - 5} - \frac{1}{x}$
- Simplify each of the following.
 - $\sqrt{3}(2 - \sqrt{3})$
 - $\sqrt{5}(\sqrt{2} - \sqrt{5})$
 - $(2\sqrt{5} - 1)(\sqrt{5} + 1)$
 - $(3\sqrt{7} - 2)^2$
 - $\sqrt{28} + 2\sqrt{63} - \sqrt{700}$
 - $\frac{\sqrt{200}}{\sqrt{18}}$
 - $\frac{\sqrt{40} - 6}{2}$
 - $\frac{\sqrt{45} - 12}{6}$
 - $(\sqrt{5} - 2)^3$
- Simplify $-x^2 + 6x - 1$ if
 - $x = -\sqrt{2}$
 - $x = \sqrt{3} - 2$
 - $x = 3 - \sqrt{7}$
- Rationalize the denominator in each of the following.
 - $\frac{10}{1 - \sqrt{5}}$
 - $\frac{\sqrt{5} + 2}{\sqrt{5} - 3}$
 - $\frac{2\sqrt{x}}{\sqrt{x} + 3}$
- Completely factor each of the following.
 - $4ab^2x - 30ab^2 + 2ab^2x^2$
 - $12a^2x^2 - 75x^2$
 - $x^2 - 6x + 13$
 - $5a^7 - 5a^3$
 - $432x + 6x^2 - x^3$
 - $20m - 2m^2 - 50$
 - $x^{16} - 25$
- Solve each of the following equations.
 - $(3x - 1)(x + 1) - 2(x - 2)^2 = 14x - 9$
 - $5m^6 = 80m^2$
 - $\frac{2}{3}(x + 2) - \frac{1}{2}(x - 4) = -\frac{x - 2}{5}$
 - $\left|\frac{1}{2}x - 3\right| + 1 = 7$
 - $|2x + 3| - 4 = 11$
 - $\left|\frac{1}{3}x - 4\right| + 5 = 1$
 - $\frac{3}{4}x - \frac{x + 3}{5} = \frac{11x - 12}{20}$
 - $630x - 12x^2 = 2x^3$
 - $x^2 - 2x = -5$
 - $2 - (2x - 5) = (x - 4)^2$

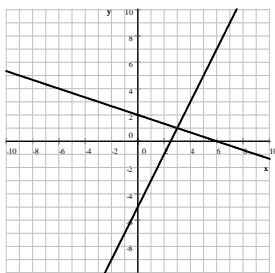
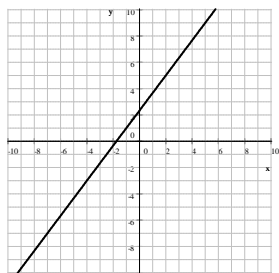
10. Solve each of the following formulas.
- a) $PV = nRT$ for T . c) $2x + 3y = 12$ for y .
- b) $A = \frac{1}{2}h(B + b)$ for h d) $2x + 3y = 12$ for x .
11. a) One number is sixteen less than twice another. Find these numbers if their sum is 17.
b) One number is sixteen less than twice another. Find these numbers if their sum is 480.
12. Five times a number is twenty less than the sum of two and the opposite of the number.
13. Pens cost \$1.50 each, notebooks cost \$2 each. We purchased some pens and notebooks. The number of pens is one less than three times the number of notebooks. How many of each did we buy if we paid a total of \$44?
14. One angle in a triangle is 73° . The difference between the other two angles is 35° . Compute the angles in the triangle.
15. a) One side of a rectangle is 12 feet shorter than three times another side. Find the sides if the rectangle has a perimeter 32 feet.
b) One side of a rectangle is 12 feet shorter than three times another side. Find the sides if the rectangle has an area 96 square-feet.
16. a) Find all numbers with the following property: nine times the number is the same as the square of the number.
b) Find all numbers with the following property: nine times the number is the same as the cube of the number.

Answers

1. $A = 240 \text{ cm}^2$

2. a) $4x - 3y = -7$

b) $(3, 1)$



3. a) 4 b) 9 c) 88 d) -10 e) -27 f) -2 g) 2 h) -4

4. a) $-4x^2 - 19x + 23$ b) $-18ax^9$ c) $-\frac{x+1}{x+3}$ d) $\frac{2(x-4)}{x+2}$ e) $\frac{2x+5}{x^2-5x}$

5. a) $2\sqrt{3} - 3$ b) $\sqrt{2}\sqrt{5} - 5$ c) $9 + \sqrt{5}$ d) $-12\sqrt{7} + 67$ e) $-2\sqrt{7}$ f) $\frac{10}{3}$ g) $\sqrt{10} - 3$
h) $\frac{\sqrt{5}-4}{2} = \frac{\sqrt{5}}{2} - 2$ i) $-38 + 17\sqrt{5}$

6. a) $-3 - 6\sqrt{2}$ b) $-20 + 10\sqrt{3}$ c) 1

7. a) $-\frac{5(\sqrt{5}+1)}{2}$ b) $-\frac{5\sqrt{5}+11}{4} = \frac{-5\sqrt{5}-11}{4}$ c) $\frac{2\sqrt{x}(\sqrt{x}-3)}{x-9} = \frac{2x-6\sqrt{x}}{x-9}$

8. a) $2ab^2(x-3)(x+5)$ b) $3x^2(2a-5)(2a+5)$ c) does not factor d) $5a^3(a^2+1)(a+1)(a-1)$
e) $-x(x-24)(x+18)$ f) $-2(m-5)^2$ g) $(x^8+5)(x^8-5)$

9. a) 0, 4 b) -2, 0, 2 c) -8 d) -6, 18 e) 6, -9 f) no solution
g) all real numbers h) 15, 0, -21 i) no solution j) 3

10. a) $T = \frac{PV}{nR}$ b) $h = \frac{2A}{B+b}$ c) $y = -\frac{2}{3}x + 4$ d) $x = -\frac{3}{2}x + 6$

11. a) 11 and 6 b) -12 with -40 and 20 with 24

12. -3

13. 7 notebooks and 20 pens

14. $36^\circ, 71^\circ, 73^\circ$

15. a) 7 ft by 9 ft b) 8 ft by 12 ft

16. a) 0, 9 b) -3, 0, 3