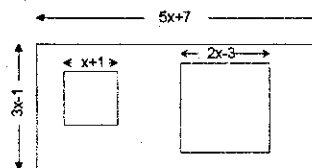


1. Find the area of the triangle bounded by the x -axis, the y -axis, and the equation $.3x - 2y = 9$
2. Let A be the slope of a cable car that rises 2 feet for every 8 feet of horizontal run. Let B be the slope of a mini sub that descends 8 meters for every 5 meters of horizontal run. Let C be the vertical distance if the slope is 40% and the horizontal distance is 15 meters. Let D be the horizontal distance if the vertical distance is 300 feet and the slope is 150%. (Note: All horizontal runs are in a positive direction.) Find $A \cdot B \cdot C \cdot D$

3. Find the area of the figure inside the large rectangle but outside the two squares. Write the expression in simplest form.



4. Solve the following over the set of whole numbers.

Let A be a whole number such that if the number is multiplied by 6

and then 8 is added to the result the total is at least 50. Let B be the set of whole numbers such that 6 times the number is between 12 and 60. Let C be a whole number such that 6 times the number decreased by 2 is at most 70. Find $A \cap B \cap C$.

5. Mary Thon starts at a point 26 miles from school and runs toward school at 6 miles per hour. Randy Miles starts from school 1.3 hours later and runs toward Mary at 8 miles per hour. How far from school do they meet?

6. Simplify:
$$\frac{\sqrt{18} + \sqrt{50} - \sqrt{72} + \sqrt{200}}{6 + \sqrt{45} + 4 - \sqrt{5} - \sqrt{20}}$$

7. Let A be a number so that $Ax^2 + 6x + 1$ is the square of a binomial. Let B be the value so that $(2, B)$ is on the line determined by $3x - 4y = 2$. Let C be the value so that $\frac{w^{50}}{w^c} = w^c$.

Find the value of $A + B + C$.

8. Write the letters of the statements that are true. A. The product of any two numbers must be positive or negative. B. If the product of seven numbers is negative, at least one is negative. C. If the product of four numbers is negative, all of the numbers are negative. D. If the product of five numbers is positive, all of the numbers are positive. E. If the product of six numbers is positive, at least one is positive. F. If one million -1 's are multiplied together, the product is 1.

9. Simplify:
$$\frac{a^2 - 4b^2}{2a^2 + 5ab - 3b^2} \cdot \frac{2a^2 + ab - b^2}{2a^2 + 3ab + b^2} \cdot \frac{a^2 + 2ab - 3b^2}{a^2 - 3ab + 2b^2} \cdot \frac{4a^2 - b^2}{2a + 4b}$$

10. Solve for y given that $a \neq b$ $(y+a)^2 - ay = (y+b)^2 - by$

11. In Lewis Carroll's Through the Looking Glass Tweedledum says to Tweedledee, "The sum of your weight and twice mine is 361 pounds." Then Tweedledee says to Tweedledum, "Contrariwise, the sum of your weight and twice mine is 362 pounds." Find the sum of the *square* of Tweedledum's weight and the *cube* of Tweedledee's weight.

12. A square piece of cardboard is 13 centimeters on a side. Squares of side y centimeters are cut out of the four corners leaving an area of 144 square centimeters of cardboard. Find y .

13. Write the equation in $Ax + By = C$ form of a line passing through the midpoint of the segment connecting $(-4, 2)$ and $(6, 10)$ and parallel to $2x - 5y = 7$.

14. Solve for x : $\sqrt{x+12} = x - 8$

15. Paul has an average of 87.5 on the last 5 tests that he has taken. He makes a 92 on his next test. What is his new average to the nearest hundredth?