

Algebra II Team #1

Lines determined by the following equations intersect at a point.
Find the value of k .

$$3x + 2y + 5 = 0$$

$$4x - 2y + 9 = 0;$$

$$5x + ky + 4 = 0$$

Algebra II Team #2

A glutton ate 100 pizzas in 5 days, each day eating 6 more than the previous day.
How many pizzas did he eat on the fourth day?

Algebra II Team #3

What is the sum of all the coefficients of $(2x - 3y)^5$.

Algebra II Team # 5

Find the value(s) of x which satisfies :

$$\begin{bmatrix} x & 2 & -3 \\ 1 & x & 1 \\ 2 & 3 & -1 \end{bmatrix} = -13$$

Algebra II Team # 6

How many arrangements are there of the word "halibut" if the vowels occupy the even places?

Algebra II Team # 4

Solve for x in the following :

$$\sqrt{x} + \sqrt{x-3} = \frac{3}{\sqrt{x-3}}$$

Algebra II Team #7

In the system of equations

$$a_1x + b_1y + c_1z = d_1$$

$$a_2x + b_2y + c_2z = d_2$$

$$a_3x + b_3y + c_3z = d_3$$

$$y = \frac{\begin{vmatrix} 1 & -1 & 1 \\ 3 & 13 & -5 \\ 5 & 1 & 2 \end{vmatrix}}{\begin{vmatrix} 1 & 1 & 1 \\ 3 & -1 & -5 \\ 5 & 3 & 2 \end{vmatrix}}$$

Find $x + y + z$.

Algebra II Team #8

A speeder going 75 miles per hour passes a state trooper parked by the side of the thruway. The trooper gives chase. Within 1.5 minutes he has reached a speed of 90 miles per hour and has gone 0.15 miles. If he continues at this speed, how many more minutes does it take him to overtake the speeder?

Algebra II Team # 10

Simplify: $\frac{\frac{3}{a} + \frac{3}{b} - \frac{6}{ab}}{\frac{4}{a} + \frac{4}{b} - \frac{8}{ab}}$

Algebra II Team # 11

What is the sixth term of the expansion

$$(2x^2 + y^3)^7$$

Algebra II Team # 9

The distance which an automobile travels after its brakes have been applied varies directly as the square of the speed of the car. For a car traveling 60 miles per hour, the stopping distance is 135 feet. What is the stopping distance for a car traveling 80 miles per hour?

Algebra II Team #12

Find the area of the triangle with coordinates

$$(-1, -1) (2, -2) \text{ and } (-2, -4)$$

Algebra II Team #14

If r and s are roots of the equation :

$$5x^2 + 2x = 1$$

Find $\frac{1}{r^2} + \frac{1}{s^2}$

Algebra II Team #15

Solve for x :

$$4x^{\frac{2}{3}} + x^{\frac{1}{3}} - 5 = 0$$