

MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 6 – MARCH 2008
ROUND 1 ALG 2: SIMULTANEOUS EQUATIONS AND DETERMINANTS

ANSWERS

A) _____

B) _____

C) (pizza, sub, spag) = (\$___ , \$___ , \$___)

- A) The system $\begin{cases} y = 2x + 1 \\ Ax + By = -9 \end{cases}$ represents a pair of perpendicular lines that intersect at $\left(\frac{1}{2}, 2\right)$.
Determine the ordered pair (A, B) .

- B) Find all real values of x for which $\begin{vmatrix} 1 & x & -3 \\ 2 & 0 & -1 \\ -3 & 2x-3 & x \end{vmatrix} = -7$

- C) After the math meet, the bus stopped at the Pythagoras House of Pizza.

The mathletes noticed the following:

3 pizzas and 2 meatball subs cost \$4 more than 5 spaghetti with meat sauce.

Twice the cost of “one meatball sub and one spaghetti with meat sauce” would be \$2 less than 3 pizzas.

The combined cost of one meatball sub and one spaghetti with meat sauce is \$3 more than the cost of one pizza. Find the cost of each item.