

MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 3 - DECEMBER 2007
ROUND 5 ALG 1: RATIO, PROPORTION OR VARIATION

ANSWERS

A) \$ _____

B) (_____ , _____)

C) _____

A) The ratio of the price of an item to the sales tax charged is 20 : 1. If the total cost, including tax, for an item is \$3.99, what is the price of the item?

B) The first of two numbers exceeds the second by x . The sum of the two numbers is y . In terms of x and y , what is the simplified ratio of the first number to the second number?

C) Dick purchased a new sailboat. He was able to determine that the pressure on the sail varies jointly as the area of the sail and the square of the wind velocity in miles per hour. He computed the pressure to be 3 pounds per square foot when the wind velocity was 18 miles per hour. What would the pressure per square foot be if the area of the sail was doubled and the wind velocity was $\frac{1}{2}$ mile per minute?