

MASSACHUSETTS MATHEMATICS LEAGUE

DECEMBER 2003

ROUND 5: RATIO & PROPORTION

ANSWERS

A) _____

B) _____

C) _____

A) Mr. Allen and Mr. Baker are business partners, their profits being divided in the ratio of 4 to 5 respectively. Mr. Currier and Mrs. Dodge are also in business, their profits being divided in the ratio of 4 to 7 respectively. When the two businesses merged, Mr. Allen and Mr. Baker's business put in \$9 for every \$11 put in by Mr. Currier and Mrs. Dodge's business. When the new business had a profit of \$12,000, how much should Mrs. Dodge receive?

B) If the ratio of a to b is 4 to 9, the ratio of b to c is 12 to 7, and the ratio of a to d is 4 to 7; calculate the ratio of c to d as a reduced fraction.

C) The height of a cylindrical tank varies directly as the volume and inversely as the square of the radius. If the height is 24, the volume is 7536, and the radius is 10; find the height when the volume is 628 and the radius is 5.