In Class Exercises Set A

Answers and Explanations (Difficulty Level)

1) The answer is **D)**. Remember: rate = distance/time. Mark and Alvin make pizzas at a rate of 8 pizzas/18 minutes = 4/9 pizzas/minute. 1.5 hours is equivalent to 90 minutes (as there are 60 minutes in one hour), so they can make (4/9 pizzas/min)(90 min) = 40 pizzas. (1)

2) The answer is **D)**. 96 - 24 = 72 teachers who bought bagels, but not coffee. 72/96 = 3/4. The key to this problem is recognizing that all the teachers who bought bagels minus those who bought both bagels and coffee is the same as those who bought only bagels. (2-)

3) The answer is **C)**. We can translate the problem into an equation: (.36)x=(.25)(144). Divide both sides by ..36 to get x = 100. (2)

4) The answer is **B)**. The first thing to do is find the rate in feet per second, 400 ft/1.5 s = 266.67 ft/s. Multiply this by known conversion rates so that the units cancel out and leave mi/hr. The rate is in ft/s, so multiply by (60 s/1 min)(60 min/1 hr.)(1 mi/5280 ft). (2)

5) The answer is **A)**. This problem is best solved with a super-ratio of freshman to sophomores to juniors. Using the ratios that are given, you must multiply by a factor so that the sophomore term is equal in each ratio (like finding a least common denominator). In this case, multiply $1:3$ by 4 and $4:1$ by 3 to get a super-ratio of $4:12:3$. Adding those up, you find that out of a total of 19 students, 3 would be juniors. (2+)

6) The answer is **20**. Multiplying Fatima's income of $13,500/year by the known conversion of 1 year/52 weeks finds that she makes about $260/week. Dividing this rate by her pay of $13/hour cancels out the units to find that she works about 20 hours per week. (2)

7) The answer is **63**. Convert each percentage into a rate to solve the problem most efficiently. The answer will simply be the product ($200)(1-0.40)(1 − 0.50)(1.05) = $63. (3)

8) The answer is **4.20** or **4.2**. The key to solving this problem is effective translation: the tips are each percentages, which you can set equal to find the unknown. (.15)($7) = (.25)x. Divide both sides by .25 to solve for Winston's total: $4.20. (3)