WORD PROBLEMS

MATH 101 Summer 2009

Problems:

1. Joe is given a $1000 bond on his eighteenth birthday. Its annual interest rate is 7.5%. He wants the bond to earn $500 before he cashes it in. How long will he wait?
2. Tom leaves Rock Hill at 10:00 a.m. on I-77 going 50 m.p.h. Jim sets off after him 2 hours later doing 75 m.p.h. When will they meet?
3. A farmer wants to use 190 feet of fence to enclose a rectangular pen. He wants the width to be 10 feet less than twice the length. What are the dimensions of the pen?
4. A chemist has 50 ml of solution which contains 40% acid. She needs a solution which contains 60% acid. How much pure acid must she add to her original solution to get what she needs?
5. A distributor has two tanks of gasohol. The gasohol in tank A contains 9% alcohol, while the gasohol in tank B contains 12% alcohol. A gas station wants 3000 gallons of gasohol which is 10% alcohol. How much from each tank should the distributor take to fill this order?
6. One hose can fill Jim's pool in 5 hours. Another hose can fill it in 3 hours. How long will it take the hoses to fill Jim's pool working together?
7. Mr. X can drink a case of an unknown beverage in 5 hours, while Mr. Y can perform the same job in 4 hours. Mr. X begins drinking at 1:00 p.m. and Mr. Y joins him at 2:30 p.m. At what time will they finish a case of beverage?
8. Tom is once again driving down I-77. He passes a car and notes that he is going 10 m.p.h. faster than it is. He pulls off the highway 10 miles down the highway. The other car passes his position 2 minutes later. How fast was Tom going on I-77?

Answers:

1. $6\frac{2}{3}$ years
2. 4:00 p.m.
3. The length is 35 feet and the width is 60 feet.
4. 25 ml
5. The distributor should use 2000 gallons from tank A and 1000 gallons from tank B.
6. $\frac{15}{8}$ hours, or 1 hour, 52 minutes, 30 seconds.
7. 4:03:20 p.m.
8. 60 m.p.h.