# Word Problems 151

Mixture Problems (Investments):

$$I_1 + I_2 = I_{TOTAL}$$

$$P_1 r_1 t_1 + P_2 r_2 t_2 = I_{TOTAL}$$

we know $P_{TOTAL}$

we let $x = P_1$, then $P_2 = P_{TOTAL} - x$

therefore $(x)r_1 t_1 + (P_{TOTAL} - x)r_2 t_2 = I_{TOTAL}$ and solve for x

1.  (Basic problem) Mr. Smith wants to get $200 interest by putting part of $7500 in an account earning 2.5% simple annual interest for one year and the rest in an account earning 3% simple annual interest for one year. How much should he put in each account?

Ans. x=$5000 at 2.5% and 7500-5000=$2500 at 3%

2.  (Basic problem) Mr. Smith needs to earn $280 in interest from bonds held for two years. He has $5500 to invest. If he puts part in bonds paying 1.75% simple annual interest and the rest in bonds paying 3.5% simple annual interest, how much should he put in each type of bond?

Ans. x=$3000 at 1.75% and 5500-3000=$2500 at 3.5%

3.  (Different investment periods) Mr. Smith needs to earn $265 in interest from his bond investments. He has $10000 to invest. If he puts some of this money into bonds paying 1.5% simple annual interest for two years the rest in bonds paying 2.5% simple annual interest for one year, how much should he put in each type of bond?

Ans. x=$3000 at 1.5% and 10000-3000=$7000 at 2.5%

4.  (One investment at twice the other) Mr. Smith is looking for $400 from $7500 over two years. If he can invest a part of the $7500 at 3% simple annual interest with double this amount at 2.5% simple annual interest, how much should he put in each type of bond?

Ans. x=$2500 at 3% and 2x = $5000 at 2.5%

5.  (One investment at three times the other) Mr. Smith wants to earn $1260 interest on a sum of $16000. If he can invest a part of the $16000 at 4.5% simple annual interest for two years with triple this amount at 2.5% simple annual interest for three years, how much should he invest at each rate?

Ans. x=$4000 at 4.5% and 3x = $12000 at 3.5%