PART B MONEY PROBLEMS - INVESTMENTS

FORMULA FOR INTEREST: INTEREST = PRINCIPLE(RATE)(TIME)

\[ I = PRT \]

THE EQUATION YOU SOLVE WILL BE ONE OF THESE:

\[ INT_A + INT_B = \text{TOTAL INT} \]
\[ INT_A = INT_B \quad \text{if each account earns the same interest} \]
\[ \text{LARGER INT - SMALLER INT = DIFFERENCE} \]

IF ONE ACCOUNT EARNED MORE THAN THE OTHER.

YOU WILL BE GIVEN THE TOTAL AMOUNT OF PRINCIPLE,
WHICH HAS TO BE SHARED BY EACH ACCOUNT.

THE PRINCIPLE IN ONE ACCOUNT WILL BE \( x \),
THE PRINCIPLE IN THE OTHER ACCOUNT WILL BE \( \text{TOTAL} - x \)

10) TOTAL PRINCIPLE = 19000
RATES: 11% AND 12%

TOTAL INTEREST = $2200

EQUATION: \((\text{INT in 12% account}) + (\text{INT in 11% account}) = \text{TOTAL INT}\)

\[ \frac{PRT}{x(1.12)(1)} + (19000-x)(0.11)(1) = 2200 \]

SOLVE

\[ 0.12x + 2090 + 0.11x = 2200 \]

\[ 0.23x = 110 \]

\[ x = 478.26 \]

\[ 19000 - x = 14211.74 \]
10 continued

\[ 2090 + 0.01x = 2200 \]
\[ -2090 \]
\[ 0.01x = 110 \]
\[ \frac{0.01}{0.01} \]
\[ x = 11000 \]

So: \( x \) invested at 12\%, \( x = 11000 \)

19000 - \( x \) invested at 11\%, 19000 - 11000 = $8000

12) TOTAL PRINCIPLE = $16000
RATES: 6\%, 8\%

THE INTEREST FROM THE 8\% BOND IS $580 GREATER
THIS BOND EARNED MORE THAN THE OTHER.

EQUATION (INT FROM 8\% BOND) - (INT FROM 6\% BOND) = 580

\[ \begin{align*}
\text{PRT} & \quad \text{PRT} \\
x(0.08)(1) & \quad (16000-x)(0.06)(1) = 580 \\
0.08x & \quad (960 - 0.06x) = 580 \\
0.08x - 960 + 0.06x & = 580 \\
0.14x - 960 & = 580 \\
+960 & \quad +960 \\
0.14x & = 1540 \\
\frac{0.14}{0.14} & \quad \frac{1540}{0.14} \\
x & = 11000 \\
\end{align*} \]

So $11,000 invested in 8\% bond

(16,000 - 11,000) = $5,000 invested in 6\% bond
PART B MONEY PROBLEMS, NOT INVESTMENTS

FORMULA: \( \text{QUANTITY} \times \text{PRICE} = \text{VALUE} \)

EQUATION: \( 1^{\text{ST}} \text{VALUE} + 2^{\text{ND}} \text{VALUE} = \text{TOTAL VALUE} \)

\( 5 \times \text{VALUE OF DECAF} + 5 \times \text{VALUE OF CAF} = \frac{\text{TOTAL VALUE}}{\text{THIS IS} = 18.45} \)

USE TABLE TO FIND VALUE OF EACH:

\[ \begin{array}{ccc}
\text{QTY} & \times \text{PRICE} & = \text{VALUE} \\
5x & 3.87 & (\text{x}) \\
5-x & 3.57 & (5-\text{x}) \\
\end{array} \]

We know the total quantity is 5 pounds, to split it up use \( x \) and \( 5-x \)

\[ 3.87x + 3.57(5-x) = 18.45 \]

\[ 3.87x + 17.85 - 3.57 = 18.45 \]

\[ \frac{3x}{2} = \frac{6}{2} \]

\[ x = 2 \text{ pounds of DECAF} \]