1) A collection of dimes and quarters is worth $15.25. There are 103 coins in all. How many of each is there?

\[
\begin{array}{c|cc|c}
N & V & T \\
\hline
D & 10 & 10D & \\
Q & 25 & 25Q & \\
103 & & 1525 \\
\end{array}
\]

\[
(-10)(D + Q) = (103)(-10)
10D + 25Q = 1525
-10D - 10Q = -1030
\]

\[
\frac{15Q}{15} = \frac{495}{15}
Q = 33
\]

\[
D + 33 = 103
\]

\[
\begin{array}{c|c}
\hline
\text{D} & \text{Q} \\
\hline
-33 & -33 \\
\hline
\text{D} & \text{= 70} \\
\end{array}
\]

70 dimes
33 Quarters

3) The attendance at a school concert was 578. Admission was $2.00 for adults and $1.50 for children. The total receipts were $985.00. How many adults and how many children attended?

\[
\begin{array}{c|cc|c}
N & V & T \\
\hline
A & 2 & 2A & \\
C & 1.5 & 1.5C & \\
578 & 985 & \\
\end{array}
\]

\[
-2(A + C) = (578)(-2)
2A + 1.5C = 985
-2A - 2C = -1156
\]

\[
\frac{-0.5C}{-0.5} = \frac{-1156}{-0.5}
C = 342
\]

\[
A + 342 = 578
\]

\[
\begin{array}{c|c|c}
\hline
\text{A} & \text{C} & \text{= 236} \\
\hline
-342 & -342 & \\
\hline
\text{A} & \text{= 236} & \\
\end{array}
\]

236 Adults
342 Children

5) A boy has $2.25 in nickels and dimes. If there are twice as many dimes as nickels, how many of each kind has he?

\[
\begin{array}{c|cc|c}
N & V & T \\
\hline
D & 10 & 10N & \\
20N & & 225 \\
\end{array}
\]

\[
5N + 20N = 225
\]

\[
\begin{array}{c|c|c}
\hline
\text{N} & \text{= 9} \\
\hline
\text{N} & \text{= 9} \\
\end{array}
\]

9 Nickels
18 Dimes

D = 2(9) = 18

7) A collection of 27 coins consisting of nickels and dimes amounts to $2.25. How many coins of each kind are there?

\[
\begin{array}{c|cc|c}
N & V & T \\
\hline
D & 10 & 10D & \\
27 & & 225 \\
\end{array}
\]

\[
(-10)(N + D) = (27)(-10)
5N + 10D = 225
-10N - 10D = -270
\]

\[
\begin{array}{c|c|c}
\hline
\text{N} & \text{= 9} \\
\hline
\text{N} & \text{= 9} \\
\end{array}
\]

9 + D = 27

\[
\begin{array}{c|c|c}
\hline
\text{D} & \text{= 18} \\
\hline
\text{D} & \text{= 18} \\
\end{array}
\]

18 Dimes
9 Nickels
9) There were 429 people at a play. Admission was $1 each for adults and 75 cents each for children. The receipts were $372.50. How many children and how many adults attended?

\[
\begin{array}{c|c|c}
N & V & T \\
\hline
A & 1 & A \\
C & .75 & .75C \\
429 & & 372.50 \\
\end{array}
\]

\[-1(A + C) = (429)(-1) \]

\[
A + .75C = 372.5 \\
\]

\[-A - C = -429 \]

\[
\frac{-25C}{-25} = \frac{-56.5}{-25} \]

\[
A + 226 = 429 \]

\[
-226 - 226 \]

\[
A = 203 \]

203 Adults

226 Children

11) There were 203 tickets sold for a volleyball game. For activity-card holders, the price was $1.25 each and for non-card holders the price was $2 each. The total amount of money collected was $310. How many of each type of ticket was sold?

\[
\begin{array}{c|c|c}
N & V & T \\
\hline
A & 1.25 & 1.25A \\
N & 2 & 2N \\
203 & & 310 \\
\end{array}
\]

\[-2(A + N) = (203)(-2) \]

\[
1.25A + 2N = 310 \\
\]

\[-2A - 2N = -406 \]

\[
\frac{-75A}{-75} = \frac{-96}{-75} \]

\[
128 + N = 203 \]

\[
-128 - 128 \]

\[
N = 75 \]

75 Non Card

128 Activity Card

13) At a recent Vikings game $445 in admission tickets was taken in. The cost of a student ticket was $1.50 and the cost of a non-student ticket was $2.50. A total of 232 tickets were sold. How many students and how many nonstudents attended the game?

\[
\begin{array}{c|c|c}
N & V & T \\
\hline
5 & 1.5 & 1.55 \\
N & 2.5 & 2.5N \\
232 & & 445 \\
\end{array}
\]

\[-1.5(S + N) = (232)(-1.5) \]

\[
1.55 + 2.5N = 445 \\
\]

\[-1.55 - 1.5N = 348 \]

\[
N = 97 \\
\]

\[
S + 97 = 232 \]

\[
-97 - 97 \]

\[
S = 135 \]

97 Non – Students

135 Students
15) A coin purse contains 18 coins in nickels and dimes. The coins have a total value of $1.15. Find the number of nickels and dimes in the coin purse.

\[ -5(N + D) = (18) \cdot (-5) \]
\[ 5N + 10D = 115 \]
\[ -5N - 5D = -90 \]

\[ \frac{5D}{5} = \frac{25}{5} \]
\[ N + 5 = 18 \]
\[ D = 5 \]

13 Nickels
5 Dimes

17) A postal clerk sold some 15¢ stamps and some 25¢ stamps. Altogether, 15 stamps were sold for a total cost of $3.15. How many of each type of stamps were sold?

\[ -15(F + T) = (15)(-15) \]
\[ F + 9 = 15 \]
\[ 15F + 25T = 315 \]
\[ -15F - 15T = -225 \]
\[ F = 6 \]
\[ T = 9 \]

6 Fifteen cents, 9 twenty-five cents

19) The total value of dimes and quarters in a bank is $6.05. There are six more quarters than dimes. Find the number of each type of coin in the bank.

\[ 10D + 25D + 150D = 605 \]
\[ 35D + 150 = 605 \]
\[ -150 - 150 \]

\[ \frac{35D}{35} = \frac{455}{35} \]
\[ D = 13 \]

13 Dimes
19 Quarters

21) A coin bank contains nickels and dimes. The number of dimes is 10 less than twice the number of nickels. The total value of all the coins is $2.75. Find the number of each type of coin in the bank.

\[ 5N + 20N - 100 = 275 \]
\[ 25N - 100 = 275 \]
\[ D = 2(15) - 10 \]
\[ D = 30 - 20 \]
\[ +100 + 100 \]
\[ D = 10 \]

\[ \frac{25N}{25} = \frac{375}{25} \]
\[ N = 15 \]

20 Dimes
15 Nickels

23) A bank teller cashed a check for $200 using twenty dollar bills and ten dollar bills. In all, twelve bills were handed to the customer. Find the number of twenty dollar bills and the number of ten dollar bills.

\[ -10(W + T) = (12)(-10) \]
\[ 8 + T = 12 \]
\[ 20W + 10T = 200 \]
\[ -8 - 8 \]
\[ -10W - 10T = -120 \]
\[ T = 4 \]
\[ \frac{10W}{10} = \frac{80}{10} \]
25) A total of $27,000 is invested, part of it at 12% and the rest at 13%. The total interest after one year is $3,385. How much was invested at each rate?

<table>
<thead>
<tr>
<th>N</th>
<th>V</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>.12</td>
<td>.12x</td>
</tr>
<tr>
<td>y</td>
<td>.13</td>
<td>.13y</td>
</tr>
<tr>
<td>27,000</td>
<td>3385</td>
<td></td>
</tr>
</tbody>
</table>

\[-0.12(x + y) = (27000)(-0.12)\]
\[0.12x + 0.13y = 3385\]
\[-14500 = -14500\]
\[x + 14500 = 27000\]
\[x = 12500\]
\[-12x - 1.2y = -3240\]
\[-12x - 1.2y = -3240\]
\[y = 14500\]
\[$12,500 @ 12\%\]
\[$14,500 @ 13\%\]

27) A total of $9,000 is invested, part of it at 10% and the rest at 12%. The total interest after one year is $1,030. How much was invested at each rate?

<table>
<thead>
<tr>
<th>N</th>
<th>V</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>.10</td>
<td>.1x</td>
</tr>
<tr>
<td>y</td>
<td>.12</td>
<td>.12y</td>
</tr>
<tr>
<td>9,000</td>
<td>1030</td>
<td></td>
</tr>
</tbody>
</table>

\[-0.1(x + y) = (9000)(-0.1)\]
\[0.1 + 0.12y = 1030\]
\[-6500 = -6500\]
\[x + 6500 = 9000\]
\[x = 2500\]
\[-0.1x - 0.1y = -900\]
\[-0.1x - 0.1y = -900\]
\[y = 6500\]
\[$2500 @ 10\%\]
\[$6500 @ 12\%\]

29) An inheritance of $10,000 is invested in 2 ways, part at 9.5% and the remainder at 11%. The combined annual interest was $1038.50. How much was invested at each rate?

<table>
<thead>
<tr>
<th>N</th>
<th>V</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>0.095</td>
<td>0.095x</td>
</tr>
<tr>
<td>y</td>
<td>0.11</td>
<td>0.11y</td>
</tr>
<tr>
<td>10,000</td>
<td>1038.50</td>
<td></td>
</tr>
</tbody>
</table>

\[-0.095(x + y) = (10000)(-0.095)\]
\[0.095x + 0.11y = 1038.50\]
\[-5900 = -5900\]
\[x + 5900 = 10000\]
\[x = 4100\]
\[-0.095x - 0.095y = -950\]
\[-0.095x - 0.095y = -950\]
\[y = 5900\]
\[$4100 @ 9.5\%\]
\[$5900 @ 11\%\]

31) Jason earned $256 interest last year on his investments. If $1600 was invested at a certain rate of return and $2400 was invested in a fund with a rate that was double the rate of the first fund, find the two rates of interest.

<table>
<thead>
<tr>
<th>N</th>
<th>V</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>1600</td>
<td>x</td>
<td>1600x</td>
</tr>
<tr>
<td>2400</td>
<td>2x</td>
<td>4800x</td>
</tr>
<tr>
<td>256</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[1600x + 4800x = 256\]
\[\frac{6400x}{6400} = \frac{256}{6400}\]
\[x = 0.04\]
\[$1600 @ 4\%\]
\[2x = 0.08\]
\[$2400 @ 8\%\]
33) A total of $8500 is invested, part of it at 6% and the rest at 3.5. The total interest after one year is $385. How much was invested at each rate?

\[
-0.035(x + y) = (8500)(-0.035) \\
0.06x + 0.035y = 385 \\
-0.035x - 0.035y = -297.5
\]

\[
\begin{array}{c|cc|c}
N & V & T & \\
\hline
x & 0.06 & 0.06x & \\
y & 0.035 & 0.035y & \\
8500 & 385 & \\
\end{array}
\]

\[
x = 3500 \\
y = 5000
\]

$3500 @ 6% \\
$5000 @ 3.5%

35) A total of $15000 is invested, part of it at 8% and the rest at 11%. The total interest after one year is $1455. How much was invested at each rate?

\[
-0.08(x + y) = (15000)(-0.08) \\
0.08x + 0.11y = 1455 \\
-0.08x - 0.08y = -1200
\]

\[
\begin{array}{c|cc|c}
N & V & T & \\
\hline
x & 0.08 & 0.08x & \\
y & 0.11 & 0.11y & \\
15000 & 1455 & \\
\end{array}
\]

\[
y = 8500 \\
$6500 @ 8% \\
$8500 @ 11%
\]

37) A total of $6000 is invested, part of it at 4.25% and the rest at 5.75%. The total interest after one year is $300. How much was invested at each rate?

\[
-0.0425(x + y) = (6000)(-0.0425) \\
0.0425x + 0.0575y = 300 \\
-0.0425x - 0.0425y = -255
\]

\[
\begin{array}{c|cc|c}
N & V & T & \\
\hline
x & 0.0425 & 0.0425x & \\
y & 0.0575 & 0.0575y & \\
6000 & 300 & \\
\end{array}
\]

\[
x = 3000 \\
y = 3000 \\
$3000 @ 4.25% \\
$3000 @ 5.75%
\]

39) A total of $11000 is invested, part of it at 6.8% and the rest at 8.2%. The total interest after one year is $797. How much was invested at each rate?

\[
-0.068(x + y) = (11000)(-0.068) \\
0.068x + 0.082y = 797 \\
-0.068x - 0.068y = -748
\]

\[
\begin{array}{c|cc|c}
N & V & T & \\
\hline
x & 0.068 & 0.068x & \\
y & 0.082 & 0.082y & \\
11000 & 797 & \\
\end{array}
\]

\[
x = 7500 \\
y = 3500 \\
$7500 @ 6.8% \\
$3500 @ 8.2%
\]
41) Samantha earned $1480 in interest last year on her investments. If $5000 was invested at a certain rate of return and $11000 was invested in a fund with a rate that was two-thirds the rate of the first fund, find the two rates of interest.

\[
\begin{array}{|c|c|c|}
\hline
N & V & T \\
\hline
5000 & x & 5000x \\
11000 & \frac{2}{3}x & \frac{22000}{3}x \\
\hline
1480 & & \\
\hline
\end{array}
\]

\[
3 \left(5000x + \frac{22000}{3}x \right) = (1480)3
\]

\[
15000x + 22000x = 44400
\]

\[
\frac{37000x}{37000} = \frac{44400}{37000}
\]

\[
x = .12
\]

\[
\frac{2}{3} (.12) = .08
\]

43) 30 coins having a value of $3.30 consists of nickels, dimes and quarters. If there are twice as many quarters as dimes, how many coins of each kind were there?

\[
\begin{array}{|c|c|c|}
\hline
N & V & T \\
\hline
5 & 5N & \\
10 & 10D & \\
Q=2D & 25 & 25D \\
30 & & 330 \\
\hline
\end{array}
\]

\[
N + D + 2D = 30
\]

\[
5N + 10D + 50D = 330
\]

\[
-5N + 3(4) = 30
\]

\[
N + 12 = 30
\]

\[
-12 = 12
\]

\[
N = 18
\]

\[
Q = 2(4) = 8
\]

18 Nickels
4 Dimes
8 Quarters