

① C : kg of Cashews @ \$6.50/kg  
A : kg of Almonds @ \$8.00/kg

Total 100 kg \* \$7.40/kg = \$740

$$\begin{array}{r} * -8 \left\{ \begin{array}{l} C + A = 100 \\ 6.5C + 8A = 740 \\ \rightarrow -8C - 8A = -800 \\ \hline -1.5C = -60 \\ C = 40 \end{array} \right. \end{array}$$

$$\begin{array}{l} 40 + A = 100 \\ A = 60 \end{array}$$

40 kg of Cashews  
60 kg of Almonds

② A : Brand A @ \$5.50/kg  
B : Brand B @ \$6.50/kg

Total 20 kg @ \$6.10/kg = \$122

$$\begin{array}{r} * -5.5 \left\{ \begin{array}{l} A + B = 20 \\ 5.5A + 6.5B = 122 \\ \rightarrow -5.5A - 5.5B = -110 \\ \hline 1B = 12 \\ B = 12 \end{array} \right. \end{array}$$

$$\begin{array}{l} A + 12 = 20 \\ A = 8 \end{array}$$

Brand A : 8 kg  
Brand B : 12 kg

## Word Problem

[A] ③  $x$ : Amount of cookies worth \$.95/Lb  
 $y$ : " " " " \$1.70/Lb

Total 45 Lb @ \$1.25/Lb = 56.25  
45 \* 1.25

$$\begin{aligned} -95(x+y) &= (45) - 95 \\ 100(.95x + 1.7y) &= (56.25) 100 \\ \rightarrow 95x + 170y &= 5625 \\ \rightarrow -95x + -95y &= -4275 \\ \hline 75y &= 1350 \\ y &= 18 \end{aligned}$$
$$\begin{aligned} x + 18 &= 45 \\ x &= 27 \end{aligned}$$

27 Lbs of Cookies worth \$.95/Lb
18 Lbs of Cookies worth \$1.70/Lb

④ A: Solution A @ 10% iodine  
B: Solution B @ 18% iodine

Total 320g @ 15% iodine = 48g  
320 \* .15 = 48

$$\begin{aligned} -.10 * (A+B) &= (320) (-.10) \\ .10A + .18B &= 48 \\ \rightarrow -.10A + -.10B &= -32 \\ \hline .08B &= 16 \\ B &= 200 \end{aligned}$$
$$\begin{aligned} A + 200 &= 320 \\ A &= 120 \end{aligned}$$

120g of A
200g of B

⑤  $x$  : 4% salt solution  
 $y$  : 8% salt solution

Total 400 g @ 5% = 20

$$-.04(x+y) = (400) - .04$$

$$.04x + .08y = 20$$

$$-.04x - .04y = -16$$

$$\hline .04y = 4$$

$$y = 100$$

$$x + 100 = 400$$

$$x = 300$$

300 g @ 4%
100 g @ 8%

⑥  $x$  : 25% silver alloy  
 $y$  : 55% silver alloy

Total 30g @ 32% = 9.6

$$(-.25) (x + y = 30)$$

$$.25x + .55y = 9.6$$

$$\rightarrow -.25x + -.25y = -7.5$$

$$\hline .3y = 2.1$$

$$y = 7$$

$$x + 7 = 30$$

$$x = 23$$

23 g of 25%
7 g of 55%

⑦  $x$  : 35% copper  
 $y$  : 65% copper

Total 20 kg @ 41% = 8.2

$$\begin{array}{r} x + y = 20 \\ (-.35) \left( \begin{array}{r} .35x + .65y = 8.2 \\ \rightarrow -.35x + -.35y = -7 \end{array} \right) \\ \hline .3y = 1.2 \\ y = 4 \end{array}$$

$$\begin{array}{r} x + 4 = 20 \\ x = 16 \end{array}$$

16 kg @ 35%  
4 kg @ 65%

⑧  $x$  : 24% butterfat  
 $y$  : 18% butterfat

Total 90 quarts @ 22% = 19.8

$$\begin{array}{r} (x + y) = (90) \quad *-.18 \\ \left( \begin{array}{r} .24x + .18y = 19.8 \\ \rightarrow -.18x + -.18y = -16.2 \end{array} \right) \\ \hline .06x = 3.6 \\ x = 60 \end{array}$$

$$\begin{array}{r} 60 + y = 90 \\ y = 30 \end{array}$$

60 quarts @ 24%  
30 quarts @ 18%

⑨  $x$  : 40% acid  
 $y$  : 15% acid

Total 40g @ 25% = 10g  
40 \* .25

$$\begin{array}{r} x + y = 40 \\ .4x + .15y = 10 \\ \rightarrow -.15x - .15y = -6 \\ \hline .25x = 4 \\ x = 16 \end{array}$$

$$\begin{array}{r} 16 + y = 40 \\ y = 24 \end{array}$$

16g @ 40%  
24g @ 15%

⑩ P : Pecans @ \$5.85/kg  
A : Almonds @ \$4.93/kg

Total: 40kg @ \$5.62/kg = 224.80

$$\begin{array}{r} (P + A = 40) \\ 5.85P + 4.93A = 224.8 \\ \rightarrow -4.93A - 4.93A = -197.2 \\ \hline .92P = 27.6 \\ P = 30 \end{array}$$

$$\begin{array}{r} 30 + A = 40 \\ A = 10 \end{array}$$

30 kg of Pecans  
10 kg of Almonds