Buying Chips and Candy

This problem gives you the chance to:
• form and solve a pair of linear equations in a practical situation

Ralph and Jody go to the shop to buy potato chips and candy bars.

Ralph buys 3 bags of potato chips and 4 candy bars. He spends $3.75.

Jody buys 4 bags of potato chips and 2 candy bars. She spends $3.00.

Later Clancy joins Ralph and Jody and asks to buy one bag of potato chips and one candy bar from them. They need to work out how much he should pay.

Ralph writes

\[ 3p + 4b = 375 \]

1. If \( p \) stands for the cost, in cents, of a bag of potato chips and \( b \) stands for the cost, in cents, of a candy bar, what does the 375 in Ralph's equation mean?

   \[ \text{It means the dollar amount with no decimal, the penny amount} \]

2. Write a similar equation, using \( p \) and \( b \), for the items Jody bought.

\[ 4p + 2b = 300 \]
3. Use the two equations to figure out the price of a bag of potato chips and the price of a candy bar.

\[
\begin{align*}
&\text{potato chips} \quad .45 \quad \times \\
&\text{candy bar} \quad .60 \quad \times \\
\end{align*}
\]

Show your work.

\[
\begin{align*}
3p + 4b &= 375 \\
-2p + 3b &= 300
\end{align*}
\]

\[
\begin{align*}
3p + 4b &= 375 \\
-8p - 4b &= -600 \\
-5p &= -225 \\
p &= 45
\end{align*}
\]

\[
\begin{align*}
-\frac{4}{3}p - \frac{11}{3}b &= -500 \\
\frac{4}{3}p + 2b &= 300
\end{align*}
\]

\[
\begin{align*}
-\frac{10}{3}b &= -200 \\
\frac{10}{3}b &= \frac{10}{3}
\end{align*}
\]

4. Clancy has just $1. Does he have enough money to buy a bag of potato chips and a candy bar?

Explain your answer by showing your calculation.

\[
\text{because } .45 + .60 = 1.05 \text{ he's } 5 \text{ cents over}
\]
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Ralph writes

\[3p + 4b = 375\]

1. If \(p\) stands for the cost, in cents, of a bag of potato chips and \(b\) stands for the cost, in cents, of a candy bar, what does the 375 in Ralph’s equation mean?

   It is now much he spent, in cents, in candy bars and chips.

2. Write a similar equation, using \(p\) and \(b\), for the items Jody bought.

\[4p + 2b = 300\]
3. Use the two equations to figure out the price of a bag of potato chips and the price of a candy bar.

\[
\begin{align*}
\text{potato chips} & \quad \frac{.50}{a} \\
\text{candy bar} & \quad \frac{.40}{a} \\
4p + \frac{2b}{a} &= 300 \\
\frac{4p + b}{4} &= 150 \\
p + b &= 38 \\
\frac{4p + 2b}{2} &= 300 \\
\frac{2p + b}{2} &= 150 \\
p + b &= 75 \\
\frac{3p + 4b}{3} &= 375 \\
\frac{p + 4b}{4} &= 125 \\
p + 10 &= 31.25 \\
p &= 50 \\
b &= 25 \\
p &= 40 \\
b &= 40
\end{align*}
\]

4. Clancy has just $1. Does he have enough money to buy a bag of potato chips and a candy bar?

Explain your answer by showing your calculation.

\[
\text{It adds up to $90} \quad \checkmark
\]

\[1 ft\]
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Ralph writes

\[ 3p + 4b = 375 \]

1. If \( p \) stands for the cost, in cents, of a bag of potato chips and \( b \) stands for the cost, in cents, of a candy bar, what does the 375 in Ralph's equation mean?

375 is the total # of cents Ralph spent on his candy bars and potato chips.  

2. Write a similar equation, using \( p \) and \( b \), for the items Jody bought.

\[ 4p + 2b = 300 \]

\( p \) = cost in cents of the potato chips

\( b \) = cost in cents of the candy bars
3. Use the two equations to figure out the price of a bag of potato chips and the price of a candy bar.

\[
\begin{align*}
\text{potato chips} & \quad \frac{.45 \ $ \times}{x} \\
\text{candy bar} & \quad \frac{.60 \ $ \times}{y} \\
\end{align*}
\]

Show your work. 

\[
\begin{align*}
\text{Ralph} & \quad 3 \quad 0.75 \\
\text{Jody} & \quad 4 \quad 2 \quad 3.00 \\
\hline
7 & \quad 6 \quad 6.75
\end{align*}
\]

4. Clancy has just $1. Does he have enough money to buy a bag of potato chips and a candy bar?

\[
\begin{align*}
.52 \text{ cents apiece} & \quad \frac{.45 \ $}{315} \quad \frac{.60 \ $}{613.60} \\
.45 & \quad .60
\end{align*}
\]

\[
\begin{align*}
7.19 & \quad 2.30 \\
6.5 & \quad 1.3 \\
12.9 & \quad 1.8 \\
30 & \quad 0.4 \\
26 & \quad 0.3 \\
40 & \quad 1.0
\end{align*}
\]

--

For one of each it would be $1.05 so it would be over $1.00 which would mean he wouldn't have enough money. 

\[\checkmark\]
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Ralph writes

\[ 3p + 4b = 375 \]

1. If \( p \) stands for the cost, in cents, of a bag of potato chips and \( b \) stands for the cost, in cents, of a candy bar, what does the 375 in Ralph’s equation mean?

\[ \text{375 is the answer in Ralph's equation.} \]

2. Write a similar equation, using \( p \) and \( b \), for the items Jody bought.

\[ 4p + 2b = 300 \]
3. Use the two equations to figure out the price of a bag of potato chips and the price of a candy bar.

\[
\begin{align*}
\text{potato chips:} & \quad 0.75 \times \_ \_ \\
\text{candy bar:} & \quad 1.50 \times 0
\end{align*}
\]

Show your work.

\[
\frac{4d = 26 - 300}{4} \quad \frac{4}{4} \quad \wedge
\]

\[
d = 75
\]

4. Clancy has just $1. Does he have enough money to buy a bag of potato chips and a candy bar?

Explain your answer by showing your calculation.

\[
\text{No because a candy bar alone costs} \ 1.50. \quad \checkmark
\]
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\[ 3p + 4b = 375 \]

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\[ 4p + 2b = 300 \]

Later Clancy joins Ralph and Jody and asks to buy one bag of potato chips and one candy bar from them. They need to work out how much he should pay.

Ralph writes

\[ 3p + 4b = 375 \]

1. If \( p \) stands for the cost, in cents, of a bag of potato chips and \( b \) stands for the cost, in cents, of a candy bar, what does the 375 in Ralph’s equation mean? Find the total amount of money spent.

\[ \begin{align*}
3p + 4b &= 375 \\
(4p + 2b) &= 300 \times (2) \\
5(4p + 4b) &= 750 \\
135 + 4b &= 375 \\
-4b &= -240 \\
p &= 45
\end{align*} \]

2. Write a similar equation, using \( p \) and \( b \), for the items Jody bought.

\[ \boxed{4p + 2b = 300} \]
3. Use the two equations to figure out the price of a bag of potato chips and the price of a candy bar.

\[ 3p + 4b = 375 \]
\[ 4p + 2b = 300 \times (2) \]

\[-8p - 4b = -600 \]
\[-5p = -225 \]
\[ p = 45 \]

\[ 3(45) + 4b = 375 \]
\[ 135 + 4b = 375 \]
\[ 4b = 240 \]
\[ b = 60 \]

Show your work.

4. Clancy has just $1. Does he have enough money to buy a bag of potato chips and a candy bar?

Explain your answer by showing your calculation.

No

\[ \text{a bag of chips} + \text{a candy bar} = 105 \]
\[ 60 + 45 \neq 100 \]
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Ralph writes

\[ 3p + 4b = 375 \]

1. If \( p \) stands for the cost, in cents, of a bag of potato chips and \( b \) stands for the cost, in cents, of a candy bar, what does the 375 in Ralph’s equation mean?

\[ \text{375 is the total amount of money he spent on 3 bags of potato chips and 4 candy bars.} \]

2. Write a similar equation, using \( p \) and \( b \), for the items Jody bought.

\[ 4p + 2b = 300 \]
3. Use the two equations to figure out the price of a bag of potato chips and the price of a candy bar.

<table>
<thead>
<tr>
<th>potato chips</th>
<th>95¢ ✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>candy bar</td>
<td>60¢</td>
</tr>
</tbody>
</table>

Show your work.

\[3p + 4b = 375\]
\[4p + 2b = 300\]

\[3x + 4y = 375\]
\[-(2)4x + 2y = 300\]
\[3x + 4y = 375\]
\[-3x + 1.5y = -225\]
\[2.5y = 150\]
\[y = 60\]

\[3x + 4y = 375\]
\[-8x + 4y = -600\]
\[-5x = -225\]
\[x = 45\]

4. Clancy has just $1. Does he have enough money to buy a bag of potato chips and a candy bar?

Explain your answer by showing your calculation. He doesn't have enough because 95¢ + 60¢ = $1.05, and there may also be tax.
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Ralph writes

\[ 3p + 4b = 375 \]

1. If \( p \) stands for the cost, in cents, of a bag of potato chips and \( b \) stands for the cost, in cents, of a candy bar, what does the 375 in Ralph’s equation mean?

The total cost of his products,

x by 100 - no fractions

2. Write a similar equation, using \( p \) and \( b \), for the items Jody bought.

\[ 4p + 2b = 300 \]
3. Use the two equations to figure out the price of a bag of potato chips and the price of a candy bar.

\[
\begin{align*}
3p + 4p &= 375 \\
-(2)4p + 2b &= 300(2)
\end{align*}
\]

\[
\begin{align*}
(3p + 4b &= 375) \\
-8p - 4b &= -600
\end{align*}
\]

\[
-5p = -225
\]

\[
p = 45
\]

Show your work.

4. Clancy has just $1. Does he have enough money to buy a bag of potato chips and a candy bar?

Explain your answer by showing your calculation.

She only has one dollar

$1.02

\(\text{No}\)

$1.02
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Ralph writes

\[ 3p + 4b = 375 \]

1. If \( p \) stands for the cost, in cents, of a bag of potato chips and \( b \) stands for the cost, in cents, of a candy bar, what does the 375 in Ralph’s equation mean?

   It's the total cost.

   \( \wedge \)

   0

2. Write a similar equation, using \( p \) and \( b \), for the items Jody bought.

   \[ 4p + 2b = 300 \]
3. Use the two equations to figure out the price of a bag of potato chips and the price of a candy bar.

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potato chips</td>
<td>45 cents</td>
</tr>
<tr>
<td>Candy bar</td>
<td>60 cents</td>
</tr>
</tbody>
</table>

Show your work.

\[
\begin{align*}
3p + 4b &= 375 \\
(4p + 2b &= 300) & \times 2 \\
\hline
3p + 4b &= 375 \\
8p + 4b &= 600 \\
\hline
5p &= 225 \\
p &= 45 \\
3(45) + 4b &= 375 \\
135 + 4b &= 375 \\
4b &= 240 \\
b &= 60
\end{align*}
\]

4. Clancy has just $1. Does he have enough money to buy a bag of potato chips and a candy bar?

No

Explain your answer by showing your calculation.

\[
\begin{align*}
100 &< 60 + 45 \\
100 &< 105
\end{align*}
\]
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Later Clancy joins Ralph and Jody and asks to buy one bag of potato chips and one candy bar from them. They need to work out how much he should pay.

Ralph writes $3p + 4b = 375$

1. If $p$ stands for the cost, in cents, of a bag of potato chips and $b$ stands for the cost, in cents, of a candy bar, what does the 375 in Ralph’s equation mean?

   \[
   \begin{array}{ll}
   \text{375 mean} & \text{375, you just take it} \\
   \text{derived} & \text{because it's easier} \\
   \end{array}
   \]

2. Write a similar equation, using $p$ and $b$, for the items Jody bought.

   \[
   4p + 2b = 300
   \]
3. Use the two equations to figure out the price of a bag of potato chips and the price of a candy bar.

\[
\begin{align*}
\text{potato chips: } & \quad 0.45d \\
\text{candy bar: } & \quad 0.60d \\
\end{align*}
\]

Show your work.

\[
\begin{align*}
3p + 4b &= 37.5 \\
\frac{3p + 4b}{4} &= 9.375 \\
3p + b &= 93.75 \\
\end{align*}
\]

\[
\begin{align*}
3p + 4b &= 37.5 \\
2p + 2b &= 24.0 \\
3p + b &= 37.5 \\
-p + 4b &= 60.0 \\
-5p &= 2.25 \\
\end{align*}
\]

4. Clancy has just $1. Does he have enough money to buy a bag of potato chips and a candy bar?

\[
\text{No}
\]

Explain your answer by showing your calculation.

\[
\text{The bag of chips is } 3.95 \text{ and a candy bar cost } 60 \text{ so the total would be } 105
\]
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Ralph writes

\[ 3p + 4b = 375 \]

1. If \( p \) stands for the cost, in cents, of a bag of potato chips and \( b \) stands for the cost, in cents, of a candy bar, what does the 375 in Ralph's equation mean?

\[
375 \text{ is the amount of money that Ralph spent on food.} \]

2. Write a similar equation, using \( p \) and \( b \), for the items Jody bought.

\[
y = 3p + 4b - 375 \times 0
\]
3. Use the two equations to figure out the price of a bag of potato chips and the price of a candy bar.

\[
\begin{align*}
\text{potato chips} & \quad 1.25 \times \\
\text{candy bar} & \quad 0.93 \times \\
\end{align*}
\]

Show your work.

\[
\frac{\$0}{3} = \frac{375}{10}
\]

\[
\frac{30}{4} = \frac{375}{4}
\]

\[
b = \frac{30}{\frac{375}{4}} = \frac{120}{375} = \frac{4}{12.5} = 0.32
\]

\[
3p + 4 = 385
\]

4. Clancy has just $1. Does he have enough money to buy a bag of potato chips and a candy bar?

Explain your answer by showing your calculation.

\[
\text{Because potato chips cost } 1.25 \text{ therefore she doesn't have enough money to buy them but she can } \sqrt{1} \text{ buy a candy bar.}
\]

\[\text{No}\]
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1. If \( p \) stands for the cost, in cents, of a bag of potato chips and \( b \) stands for the cost, in cents, of a candy bar, what does the 375 in Ralph's equation mean?

\[
\text{375 is the amount in cents he spent on both potato chips and candy bars combine.} \checkmark
\]

2. Write a similar equation, using \( p \) and \( b \), for the items Jody bought.

\[
p4 + 6b = 300 \checkmark
\]
3. Use the two equations to figure out the price of a bag of potato chips and the price of a candy bar.

\[
\begin{align*}
\text{potato chips} & \ 
\frac{.75}{\text{candy bar}} \ 
\frac{.25}{0}
\end{align*}
\]

Show your work.

\[
\begin{align*}
3.75 + 3.00 &= 6.75 \\
.75 &\div 6.75 = .11 \\
.25 &\div 6.75 = .04
\end{align*}
\]

4. Clancy has just $1. Does he have enough money to buy a bag of potato chips and a candy bar?

Yes

Explain your answer by showing your calculation.

He has just enough for each because \( .75 + .25 = 1 \)
Buying Chips and Candy

This problem gives you the chance to:
• form and solve a pair of linear equations in a practical situation

Ralph and Jody go to the shop to buy potato chips and candy bars.

\[2c - 4b = 2.00\]
\[4c - 3b = 3.75\]

Ralph buys 3 bags of potato chips and 4 candy bars. He spends $3.75.

Jody buys 4 bags of potato chips and 2 candy bars. She spends $3.00.

Later Clancy joins Ralph and Jody and asks to buy one bag of potato chips and one candy bar from them. They need to work out how much he should pay.

Ralph writes

\[3p + 4b = 375\]

1. If \(p\) stands for the cost, in cents, of a bag of potato chips and \(b\) stands for the cost, in cents, of a candy bar, what does the 375 in Ralph’s equation mean?

   - the cost of all the items total.
   - ^

2. Write a similar equation, using \(p\) and \(b\), for the items Jody bought.

\[4p + 2b = 200\]
3. Use the two equations to figure out the price of a bag of potato chips and the price of a candy bar.

\[
\begin{align*}
\text{potato chips} & \quad \$0.05 \quad \checkmark \\
\text{candy bar} & \quad \$0.90 \quad \checkmark \\
\text{1 ft}
\end{align*}
\]

Show your work.

\[
\begin{align*}
3p + 4b &= 3.75 \\
4p + 2b &= 2.00
\end{align*}
\]

\[
\begin{align*}
3(5) + 4b &= 3.75 \\
15 + 4b &= 3.75 \\
-15 &\quad -15 \\
4b &= 1.85 \\
\frac{4b}{4} &\quad \frac{1.85}{4} \\
b &= 0.4625 \quad \checkmark
\end{align*}
\]

\[
\begin{align*}
4p + 2b &= 2.00 \\
3p + 4b &= 3.75 \\
-8p - 4b &= -4.00 \\
\frac{-5b}{-5} &\quad \frac{-25}{-5} \\
p &= 5 \quad \checkmark
\end{align*}
\]

4. Clancy has just $1. Does he have enough money to buy a bag of potato chips and a candy bar?

\[
0.90 + 0.5 = \$0.95
\]

yes

Explain your answer by showing your calculation.

\[
1(0.90) + 1(0.05) = \$0.95
\]

\[
\checkmark
\]

\[
\text{1 ft}
\]
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Ralph writes

\[3p + 4b = 375\]

1. If \(p\) stands for the cost, in cents, of a bag of potato chips and \(b\) stands for the cost, in cents, of a candy bar, what does the 375 in Ralph’s equation mean?

- the total amount of \( \times \) spent.

2. Write a similar equation, using \(p\) and \(b\), for the items Jody bought.

\[4p + 2b = 300\]
3. Use the two equations to figure out the price of a bag of potato chips and the price of a candy bar.

\[
\begin{align*}
3p + 4b &= 375 \\
-8p - 4b &= -600 \\
\end{align*}
\]

\[
\begin{align*}
3(15) + 4b &= 375 \\
135 + 4b &= 375 \\
4b &= 240 \\
b &= 60.
\end{align*}
\]

4. Clancy has just $1. Does he have enough money to buy a bag of potato chips and a candy bar?

Explain your answer by showing your calculation.

\[
60 + 4.5 = 1.05 > 1.00
\]

\[\text{no}\]
Buying Chips and Candy
This problem gives you the chance to:
• form and solve a pair of linear equations in a practical situation

Ralph and Jody go to the shop to buy potato chips and candy bars.

Ralph buys 3 bags of potato chips and 4 candy bars. He spends $3.75.

\[3p + 4c = 3.75\]

Jody buys 4 bags of potato chips and 2 candy bars. She spends $3.00.

\[4p + 2c = 3.00\]

Later Clancy joins Ralph and Jody and asks to buy one bag of potato chips and one candy bar from them. They need to work out how much he should pay.

\[p + c = \]

Ralph writes \[3p + 4b = 375\]

1. If \(p\) stands for the cost, in cents, of a bag of potato chips and \(b\) stands for the cost, in cents, of a candy bar, what does the 375 in Ralph’s equation mean?

\[\text{Total Cost} = 375\]

2. Write a similar equation, using \(p\) and \(b\), for the items Jody bought.

\[4p + 2b = 300\]
3. Use the two equations to figure out the price of a bag of potato chips and the price of a candy bar.

Show your work.

\[ \begin{align*}
3p + 4b &= 375 \\
-2p + 3b &= 300 \\
\hline
p &= 75
\end{align*} \]

\[ \begin{align*}
3p + 4b &= 375 \\
-8p + 3b &= 400 \\
\hline
-5p &= -375 \\
\hline
p &= 75
\end{align*} \]

4. Clancy has just $1. Does he have enough money to buy a bag of potato chips and a candy bar?

Explain your answer by showing your calculation.

\[ \text{No} \]

\[ \text{Because, together the items add up to more than a dollar.} \]
Buying Chips and Candy

This problem gives you the chance to:
• form and solve a pair of linear equations in a practical situation

Ralph and Jody go to the shop to buy potato chips and candy bars.

Ralph buys 3 bags of potato chips and 4 candy bars. He spends $3.75.

Jody buys 4 bags of potato chips and 2 candy bars. She spends $3.00.

Later Clancy joins Ralph and Jody and asks to buy one bag of potato chips and one candy bar from them. They need to work out how much he should pay.

Ralph writes \[ 3p + 4b = 375 \]

1. If \( p \) stands for the cost, in cents, of a bag of potato chips and \( b \) stands for the cost, in cents, of a candy bar, what does the 375 in Ralph’s equation mean?

   The 375 means $3.75 for his total.

2. Write a similar equation, using \( p \) and \( b \), for the items Jody bought.

   \[ 4p + 2b = 300 \]
3. Use the two equations to figure out the price of a bag of potato chips and the price of a candy bar.

\[
\begin{align*}
\text{potato chips:} & \quad 4.54 \\
\text{candy bar:} & \quad 6.01
\end{align*}
\]

Show your work.

\[
\begin{align*}
3p + 4.6 &= 37.5 \\
4p + 2b &= 30.0 \\
120 + 2b &= 300 \\
-8p - 4.2 &= -600 \\
2b &= 120 \\
-b &= 60 \\
-5p &= -225 \\
p &= 45 \\
3.5 + 2.4 &= 3.75
\end{align*}
\]

4. Clancy has just $1. Does he have enough money to buy a bag of potato chips and a candy bar?

\[
\begin{align*}
60 + 4.5 &= \\
105 & \checkmark
\end{align*}
\]

No. He needs 5¢ more.