Systems of Equations – Elimination Method

10. Solve the systems of equations below using the elimination method

Line 1: \[5x + 3y = 54.5\]
Line 2: \[8x - 12y = 188\]

Answer: \((______,______)\)

11. Solve the systems of equations below using the elimination method

Line 1: \[-3x + 18y = 101.1\]
Line 2: \[6x + 9y = 87.45\]

Answer: \((______,______)\)
Systems of Equations – Elimination Method

10. Solve the systems of equations below using the elimination method

\[ \begin{align*}
\text{Line 1:} & \quad 5x + 3y = 54.5 \\
\text{Line 2:} & \quad 8x - 12y = 188
\end{align*} \]

\[ \begin{align*}
\text{STEP 1} & \quad \text{Multiply the first rule by 8 and the second rule by 5} \\
8(5x) + 8(3y) = 8(54.5) \\
40x + 24y = 436 \\
5(8x) - 5(12y) = 5(188) \\
40x - 60y = 940 \\
\text{STEP 3} & \quad \frac{5x + 3y = 54.5}{5x + 3(-6) = 54.5} \\
& \quad \frac{5x - 18 = 54.5}{+18 + 18} \\
& \quad \frac{5x}{5} = \frac{72.5}{5} \\
& \quad x = 14.5
\end{align*} \]

Answer: \((14.5, -6)\)

11. Solve the systems of equations below using the elimination method

\[ \begin{align*}
\text{Line 1:} & \quad -3x + 18y = 101.1 \\
\text{Line 2:} & \quad 6x + 9y = 87.45
\end{align*} \]

\[ \begin{align*}
\text{STEP 1} & \quad \text{Multiply the first rule by 6 and the second rule by -3} \\
6(-3x) + 6(18y) = 6(101.1) \\
-18x + 108y = 606.6 \\
\text{STEP 3} & \quad (-3)(6x) + (-3)(9y) = (-3)(87.45) \\
& \quad -18 + 27y = -262.35 \\
& \quad 6x + 9y = 87.45 \\
6x + 9(6.43\bar{6}) = 87.45 \\
6x + 57.93 = 87.45 \\
& \quad \frac{-57.93}{-57.93} \\
& \quad \frac{6x}{6} = \frac{29.52}{6} \\
& \quad x = 4.92
\end{align*} \]

Answer: \((4.92, 6.43\bar{6})\)
12. Thomas gets a job selling pizza and hot dogs at local soccer games. He keeps a record of his sales in a table.

<table>
<thead>
<tr>
<th></th>
<th>Pizza</th>
<th>Hot dogs</th>
<th>Sales ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Game 1</td>
<td>72</td>
<td>50</td>
<td>237</td>
</tr>
<tr>
<td>Game 2</td>
<td>35</td>
<td>40</td>
<td>138.75</td>
</tr>
<tr>
<td>Game 3</td>
<td>90</td>
<td>68</td>
<td>?</td>
</tr>
</tbody>
</table>

- What does ‘x’ represent in this problem? __________________________
- What does ‘y’ represent in this problem? __________________________

a) How much does a slice of pizza cost?
b) How much does he earn for a hot dog?
c) How much money did Thomas earn during game 3?

Answer:  
a) A slice of pizza costs: $ ________________
b) A hot dog costs: $ ________________
c) Thomas made $ ____________ during game 3.
12. Thomas gets a job selling pizza and hot dogs at local soccer games. He keeps a record of his sales in a table.

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• What does ‘x’ represent in this problem? $5 \text{ pizza (cost)}$
• What does ‘y’ represent in this problem? $5 \text{ hot dog (cost)}$

a) How much does a slice of pizza cost? 

b) How much does he earn for a hot dog? 

c) How much money did Thomas earn during game 3?

Answer:

a) A slice of pizza costs: $\boxed{2.25}$

b) A hot dog costs: $\boxed{1.50}$

c) Thomas made $\boxed{304.50}$ during game 3.
13. Morris works at EB Games selling X-Box Ones and PS4s.

Last week, he sold 3 X-Boxes and 5 PS4s and made a total of $3135.00
This week, he sold 6 X-Boxes and 4 PS4s and made a total of $4020.00

• What does ‘x’ represent in this problem? _______________________
• What does ‘y’ represent in this problem? _______________________

Next week, Morris will make $2715.00 selling 2 X-Boxes and some PS4s.
How many PS4s will Morris sell next week?

Answer:

The number of PS4s Morris will sell is: ____________
13. Morris works at EB Games selling X-Box Ones and PS4s.

\[ 3x + 5y = 3135 \]
\[ 6x + 4y = 4020 \]

**Last week,** he sold **3** X-Boxes **and 5** PS4s and made a total of **$3135.00**

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