Solving Systems – Worksheet #3

Please make sure that you:

1 – Graph both equations (use any graphing method)
2 – Locate the intersection point
3 – Check your answer to make sure it works

SHOW ALL YOUR WORK and PAY ATTENTION TO DETAILS!!

1)
\[
\begin{aligned}
    y &= -2x - 6 \\
    3y &= -x + 2
\end{aligned}
\]

\[m = \frac{-2}{1} \]

\[(0, -6)\]

Check solution:
\[
\begin{aligned}
    y &= -2x - 6 \\
    2 &= 2 \rightarrow 0 - 6 - 6 \\
    2 &= 0 - 6 \\
    2 &= 2 \\
    \text{Check!}
\end{aligned}
\]

SOLUTION
\[(-4, 2)\]

2)
\[
\begin{aligned}
    2y &= 5x + 4 \\
    y - x &= 5
\end{aligned}
\]

\[m = \frac{5}{2} \]

\[(0, 2)\]

Check solution:
\[
\begin{aligned}
    2y &= 5x + 4 \\
    2 \cdot 7 &= 5 \cdot 2 + 4 \\
    14 &= 10 + 4 \\
    14 &= 14 \\
    \text{Check!}
\end{aligned}
\]

SOLUTION
\[(2, 7)\]
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3) \[ y = \frac{1}{4}x - 3 \]
\[ m = \frac{1}{4} \]
\[ (0, -3) \]
\[ -2x = 4y \]
\[ \text{Solution:} \ (4, -2) \]

Check solution:
\[ y = \frac{1}{4}x - 3 \]
\[ -2 = \frac{1}{4} \cdot 4 - 3 \]
\[ -2 = 1 - 3 \]
\[ -2 = -2 \]

4) \[ y = 4x - 6 \]
\[ m = \frac{4}{1} \]
\[ (0, -6) \]
\[ 2y + 8x = -12 \]
\[ \text{Solution:} \ (0, -6) \]

Check solution:
\[ y = 4x - 6 \]
\[ -6 = 4 \cdot 0 - 6 \]
\[ -6 = -6 \]

5) Is \ (3, -6) \ a solution to the following system:
\[ \begin{aligned}
3x + y &= 3 \\
3 \cdot 3 + -6 &= 3 \\
9 - 6 &= 3 \\
3 &= 3 \\
\text{Check!} &\text{ NO!}
\end{aligned} \]
\[ \begin{aligned}
y - 2x &= 15 \\
-6 - 2 \cdot 3 &= 15 \\
-6 - 6 &= 15 \\
-12 &= 15 \\
\text{Check!} &\text{ NO!}
\end{aligned} \]
\[ \begin{aligned}
5x + 4y &= -9 \\
5 \cdot 3 + 4 \cdot -6 &= -9 \\
15 - 24 &= -9 \\
-9 &= -9 \\
\text{Check!}
\end{aligned} \]