1. Pictured below is the curve $y = x^2 - 5x + 2$ for $x = 0$ to 5.

![Graph of $y = x^2 - 5x + 2$ from 0 to 5]

(a) Use the graph to estimate the solutions to $x^2 - 5x + 2 = 0$.

4.5 and 0.5

(b) Use the graph to estimate the solutions to $x^2 - 5x + 2 = 1$.

4.8 and 0.2

(c) Use the graph to estimate the solutions to $x^2 - 5x + 2 = -3$.

1.4 and 3.6

2. Pictured below is the curve $y = x^2 - 2x - 2$ for $x = -2$ to 4.

![Graph of $y = x^2 - 2x - 2$ from -2 to 4]

(a) Use the graph to estimate the solutions to $x^2 - 2x - 2 = 0$.

-0.7 and 2.7

(b) Use the graph to estimate the solutions to $x^2 - 2x - 2 = 4$.

-1.7 and 3.7
3.
Pictured below is the curve \( y = x^2 - 4x - 10 \) for \( x = -3 \) to 7.

(a) Use the graph to estimate the solutions to \( x^2 - 4x - 10 = 0 \).

\[-1.6 \text{ and } 5.6\]

(b) Use the graph to estimate the solutions to \( x^2 - 4x - 5 = 0 \).

\[-5 \quad x^2 - 4x - 5 = 0 \]
\[-5 \quad x^2 - 4x - 10 = -5 \]
\[-0.8 \text{ and } 4.8\]

4.
Pictured below is the curve \( y = 6 + 3x - x^2 \) for \( x = -3 \) to 6.

(a) Use the graph to estimate the solutions to the equation \( 9 + 3x - x^2 = 0 \).

\[-3 \quad 9 + 3x - x^2 = 0 \]
\[-3 \quad 6 + 3x - x^2 = -3 \]
\[-1.8 \text{ and } 4.8\]

(b) Use the graph to estimate the solutions to the equation \( 2 + 3x - x^2 = 0 \).

\[+4 \quad 2 + 3x - x^2 = 0 \]
\[+4 \quad 6 + 3x - x^2 = 4 \]
\[3.6 \text{ and } -0.6\]
5. Pictured below is the curve \( y = x^2 - 7x + 9 \) for \( x = 0 \) to 7.

\[ y = x^2 - 7x + 9 \]

(a) Use the graph to estimate the solutions to the equation \( x^2 - 7x + 4 = 0 \).

\[
x^2 - 7x + 4 = 0 \quad \Rightarrow \quad 0.6 \text{ and } 6.4
\]

(b) Use the graph to estimate the solutions to the equation \( x^2 - 7x + 11 = 0 \).

\[
x^2 - 7x + 11 = 0 \quad \Rightarrow \quad 2.4 \text{ and } 4.6
\]

6. Pictured below is the curve \( y = 2x^2 - 5x - 16 \) for \( x = -3 \) to 6.

\[ y = 2x^2 - 5x - 16 \]

(a) Use the graph to estimate the solutions to the equation \( 2x^2 - 5x - 24 = 0 \).

\[
2x^2 - 5x - 24 = 0 \quad \Rightarrow \quad -2.4 \text{ and } 4.9
\]

(b) Use the graph to estimate the solutions to the equation \( 2x^2 - 5x + 2 = 0 \).

\[
2x^2 - 5x + 2 = 0 \quad \Rightarrow \quad 0.5 \text{ and } 2
\]
7. Pictured below is the curve $y = x^2 - 4$ for $x = -3$ to 3.

(a) Complete the table of values for $y = x + 1$.

<table>
<thead>
<tr>
<th>$x$</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>$y$</td>
<td>-2</td>
<td>-1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

(b) On the same axis, plot the line $y = x + 1$.

(c) Use the graph to estimate the solutions to the equation $x^2 - 4 = x + 1$.

$$-1.8 \quad \text{and} \quad 2.8$$

8. Pictured below is the curve $y = 10 - x - x^2$ for $x = -4$ to 3.

(a) On the same axis, plot the line $y = 4 - 2x$.

<table>
<thead>
<tr>
<th>$x$</th>
<th>-4</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>$y$</td>
<td>12</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>-2</td>
</tr>
</tbody>
</table>

(b) Use the graph to estimate the solutions to the equation $10 - x - x^2 = 4 - 2x$.

$$-0.6 \quad \text{and} \quad 1.6$$
9. Pictured below is the graph \( y = 3x - 1 \) for \( x = 0 \) to 4.

By drawing a second graph on the grid, estimate the solution to the simultaneous equations:

\[
\begin{align*}
y &= 3x - 1 \\
y &= 7 - 3x
\end{align*}
\]

By graphing, we estimate the solution to be \( x = 1.7 \), \( y = 2 \).

10. Pictured below is the graph \( 2y + 3x = 8 \) for \( x = 0 \) to 4.

By drawing a second graph on the grid, estimate the solution to the simultaneous equations:

\[
\begin{align*}
2y + 3x &= 8 \\
y &= 4x - 5
\end{align*}
\]

By graphing, we estimate the solution to be \( x = 1.7 \), \( y = 1.5 \).
By drawing another graph on the grid, estimate the solution to the simultaneous equations:

\[ \begin{align*}
3y + 7x &= 7 \\
2y - 11x &= 10
\end{align*} \]

\[
\begin{align*}
2y &= 10 + 11x \\
y &= 5 + \frac{11}{2}x
\end{align*}
\]

<table>
<thead>
<tr>
<th>x</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>y</td>
<td>-6</td>
<td>-0.5</td>
<td>5</td>
<td>10.5</td>
<td>16</td>
</tr>
</tbody>
</table>

\[
x = -0.3, \quad y = 3.4
\]
12.
Pictured below is the curve $y = 3x^2 - 19$ for $x = -3$ to $3$.

(a) Use the graph to estimate the solutions to the equation $3x^2 - 8 = 0$.

$$-1.6 \text{ and } 1.6$$

(b) By drawing an appropriate straight line, use the graph to estimate the solutions to the equation $3x^2 - 19 = 3x - 11$.

$$x = -1.2 \text{ and } 2.2$$
13.
Pictured below is the graph \( y = -2x^2 + 3x + 11 \) for \( x = -3 \) to 4.

(a) By drawing an appropriate straight line, use the graph to estimate the solutions to the equation \(-2x^2 + 3x + 11 = 5x + 4\).

\[
\begin{array}{c|cccccccc}
 x & -3 & -2 & -1 & 0 & 1 & 2 & 3 & 4 \\
 y & -11 & -6 & -1 & 4 & 9 & 14 & 19 & 24 \\
\end{array}
\]

\( x = -2.4, 1.5 \)

(b) By drawing an appropriate straight line, use the graph to estimate the solutions to the equation \(-2x^2 + 3x + 11 = 3 - 2x\).

\[
\begin{array}{c|cccccccc}
 x & -3 & -2 & -1 & 0 & 1 & 2 & 3 & 4 \\
 y & 9 & 7 & 5 & 3 & 1 & -1 & -3 & -5 \\
\end{array}
\]

\( x = -1.1, 3.6 \)
14.
Pictured below is the graph $y = 2x^2 + x - 7$ for $x = -4$ to $3$.

(a) By drawing an appropriate straight line, use the graph to estimate the solutions to the equation $2x^2 + 3x - 12 = 0$.

$\begin{align*}
-2x & \quad 2x^2 + 3x - 12 = 0 \\
2x & \quad 2x^2 + x - 12 = -2x \\
+5 & \quad 2x^2 + x - 7 = 5 - 2x
\end{align*}$

$x = -3.3, 1.8$

(b) By drawing an appropriate straight line, use the graph to estimate the solutions to the equation $2x^2 = 2x + 3$.

$\begin{align*}
+x & \quad 2x^2 = 2x + 3 \\
-7 & \quad 2x^2 + x - 7 = 3x - 4
\end{align*}$

$x = -0.8, 1.8$
15.
Pictured below is the curve $y = 4x^2 - 6x - 9$ for $x = -3$ to 4.

(a) Use the graph to estimate the solutions to the equation $4x^2 - 2x - 3 = 6x - 5$.

First, we rewrite the equation as $4x^2 - 8x + 2 = 0$. By inspection or using the quadratic formula, we can estimate the solutions.

(b) Use the graph to estimate the solutions to the equation $5x^2 - 6x = 24$.

Again, we can rewrite the equation as $5x^2 - 6x - 24 = 0$. By inspection or using the quadratic formula, we can estimate the solutions.