Find any intercepts:

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

Find y-intercept:

\[ x = 0 \]
\[ y = (0)^2 + (0) - 2 \]
\[ y = 0 - 2 \]
\[ y = -2 \]

\((0, -2)\) is the y-intercept.

Find x-intercepts:

\[ y = 0 \]
\[ 0 = x^2 + x - 2 \]
\[ 0 = (x + 2)(x - 1) \]

Either

\[ x + 2 = 0 \quad \text{or} \quad x - 1 = 0 \]
\[ x = -2 \quad x = 1 \]

\((-2, 0) \quad \text{and} \quad (1, 0)\) are x-intercepts.
#30 \hspace{1cm} \text{Test for symmetry:} \hspace{1cm} y = x^3 + x

\text{Test for symmetry about origin:}

\begin{align*}
-\gamma &= (-x)^3 + (-x) \\
\gamma &= -x^3 - x \\
\gamma &= -(x^3 + x) \\
\gamma &= -\gamma
\end{align*}

The graph tells us this function is clearly not symmetric about either axis.

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#62 \hspace{1cm} \text{Find points of intersection:}

\begin{align*}
2x - 3y &= 13 \\
5x + 3y &= 1
\end{align*}

\begin{align*}
+2x - 3y &= 13 \\
5x + 3y &= 1 \\
7x &= 14 \\
x &= \frac{14}{7}
\end{align*}

\begin{align*}
\frac{1.7x}{\frac{7}{7}} &= \frac{1.14}{7} \\
x &= 2
\end{align*}

\text{Find } y:\n
\begin{align*}
5x + 3(2) &= 1 \\
6 + 5x + 6 &= 1 + (-6) \\
\frac{4}{5} &= 5x = -5 \cdot \frac{1}{5}
\end{align*}

\text{The point of intersection is } (-1, 2).
Find the points of intersection:

\[ x^2 + y^2 = 25 \]
\[ 2x + y = 10 \]

\[ 2x + y = 10 \]

Use \( y = -2x + 10 \) for substitution

\[ x^2 + y^2 = 25 \]
\[ x^2 + (-2x + 10)^2 = 25 \]
\[ x^2 + (-2x + 10)(-2x + 10) = 25 \]
\[ x^2 + 4x^2 - 20x - 20x + 100 = 25 \]
\[-25 + 5x^2 - 40x + 100 = 25 + (-25) \]
\[ 5x^2 - 40x + 75 = 0 \]
\[ \frac{1}{5}(5x^2 - 40x + 75) = \frac{1}{5} \cdot 0 \]
\[ x^2 - 8x + 15 = 0 \]
\[ (x - 5)(x - 3) = 0 \]

Either
\[ x - 5 = 0 \text{ or } x - 3 = 0 \]
\[ x = 5 \text{ or } x = 3 \]

Find \( y \):

\[ 2x + y = 10 \]
\[ x = 5 \]
\[ 2(5) + y = 10 \]
\[ 10 + y = 10 + (-10) \]
\[ y = 0 \]
\[ (5, 0) \]

\[ x = 3 \]
\[ 2(3) + y = 10 \]
\[ 6 + y = 10 + (-6) \]
\[ y = 4 \]
\[ (3, 4) \]

are the points of intersection.