Follow these steps:

1. Create one graph for each piece where “if” condition is an **inequality**.

2. Cut each graph vertically at the x-values specified in the “if” condition. Keep only the relevant parts, putting open and closed dots as needed. Piece them together to begin creating your final graph. Be sure to line up the x-axis.

3. Add a closed dot to your graph for each piece where “if” condition is an **equality**.

4. Put “finishing touches” on your graph; for example, label the x-axis and y-axis, put numbers on the x-axis and y-axis to establish the scale of the graph, etc.

* A graph is “continuous” if you can draw all of it without picking up your pencil.

**Problem** (Answers)

\[ f(x) = \begin{cases} 
2x - 1 & \text{if } x < 1 \\
-x + 2 & \text{if } x \geq 1 
\end{cases} \]

\[ y = \frac{2x + 1}{2} \]

\[ m = \text{rise} \quad \frac{5}{1} \quad \text{run} \]

y = \text{int} = 2.5
Problem (Algebra)

Follow these steps:

1. Create an open for each piece whose \( f(x) \)
2. Cut each graph vertically at the relevant point.
3. Put condition and the interval where the inequality holds true.
4. Add a closed dot to your graph for each piece whose inequality is true.

Put finishing touches on your graph and label the \( x \)-axis and \( y \)-axis to establish the scale of the graph.

For example, label the \( x \)-axis and \( y \)-axis, put numbers on the \( x \)-axis and \( y \)-axis to establish the scale of the graph.

A graph is "continuous" if you can draw all of it without picking up your pencil.

\[
\begin{align*}
  y &= 2x + 1 \\
  m &= \text{slope} \\
  y &= 1x + 3 \\
  m &= \text{slope} \\
  y &= 2x - 2 \\
  m &= \text{slope}
\end{align*}
\]
\[ \begin{align*} 
\text{Evaluate Piecewise Defined Functions} \\
& \text{given } f(x) = \begin{cases} 
\frac{1}{4} x^2 + 4 & \text{if } x \neq -2 \\
-\frac{3}{4} & \text{if } x = -2 
\end{cases} \\
\text{Find } f(-5), f(-2), \text{ and } f(0). \\
f(-5) & = \frac{1}{4} (-5)^2 + 4 = \frac{25}{4} + \frac{16}{4} = \frac{41}{4} \\
f(0) & = \frac{1}{4} (0)^2 + 4 = \frac{9}{4} \\
\end{align*} \]

*The x tell you what equation to use*

\[ \begin{align*} 
f(-5) & = \frac{25}{4} + \frac{16}{4} = \frac{41}{4} \\
f(0) & = \frac{9}{4} \\
\end{align*} \]