

Tell where^{x values} the function^{y values} is increasing,
using interval notation?

$$(-\infty, -4.9) \cup (-1, 3.6)$$

$$\text{OR } (-\infty, -4.9] \cup [-1, 3.6)$$

Tell where the function is positive,
using interval notation.

$$(-6.5, -2.5) \cup (0, 6)$$

Maxima and minima.

What is the maximum value of the function, and where does it occur?

The maximum value of the function is 11.2 at 3.6. There is no minimum value.

What is the average rate of change
of the function from $x=1$ to $x=5$?

$$\frac{f(5) - f(1)}{5 - 1} = \frac{8 - 4}{5 - 1} = \frac{4}{4} = 1$$

On average, from $x=1$ to $x=5$, the
function is increasing by 1.

Give the average rate of change of the function from $x = -4$ to $x = 0$.

$$\frac{f(0) - f(-4)}{0 - (-4)} = \frac{0 - 3}{4} = -\frac{3}{4}$$

From $x = -4$ to $x = 0$ the function decreased at an average rate of $\frac{3}{4}$.