

g 1. Domain

c 2. Interval(s) where Decreasing

f 3. Interval(s) where Increasing

e 4. y-intercept

d 5. Constant interval

b 6. Range

a 7. Maximum

a. (4,2)

b. $(-\infty, 2]$

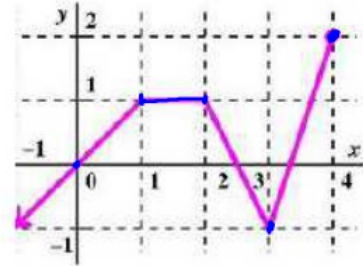
c. (2, 3)

d. (1,2)

e. (0,0)

f. $(-\infty, 1)$ and (3,4)

g. $(-\infty, 4]$



2. Use the graph below to answer the questions below. Estimate where needed.

a. The absolute minimum is:
 $(0, 0)$

b. The absolute maximum is:
 $(4, 6)$

b. The graph is increasing on the interval(s):
 $(0, 4)$

c. The graph is decreasing on the interval(s):
 $(-2, 0)$

c. The graph is constant on the interval of:
 $(-\infty, -2)$

d. The domain and range are:
D: $(-\infty, 4]$
R: $[0, 6]$

g. Find $f(1.5)$
2

h) Find $f(x) = 2$
 $-1.5, 1.5$

i. The x-intercept(s) are:
 $x = 0$

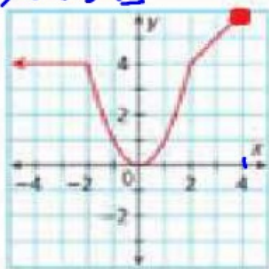
j. The y-intercept is:
 $(0, 0)$

k. Find when $f(x) > 0$
 $(-\infty, 0) \cup (0, 4]$

l. $f(x) \leq 0$
 $x = 0$

m. The average rate of change from $x = 0$ to $x = 4$ is?
 $(0, 0)$ $(4, 6)$

$$ARC = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - 0}{4 - 0} = \frac{6}{4} = \frac{3}{2}$$



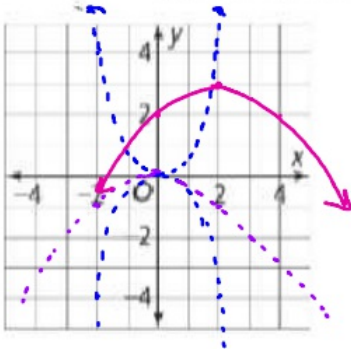
2. A. Describe the translations of the parent function $f(x) = x^2$ that give $g(x) = -0.25(x - 2)^2 + 3$.
- B. Sketch the Graph of $g(x)$
- C. Give the Domain and Range of $g(x)$.

Reflection over x-axis

Vertical Compression by a factor of $\frac{1}{4}$

Right 2

Up 3



$D: (-\infty, \infty)$

$R: (-\infty, 3]$

3. Graph the piecewise function given below.

$$f(x) = \begin{cases} -4, & x \leq -2 \\ x - 2, & -2 < x < 2 \\ -2x + 4, & x \geq 2 \end{cases}$$

$x \leq -2$

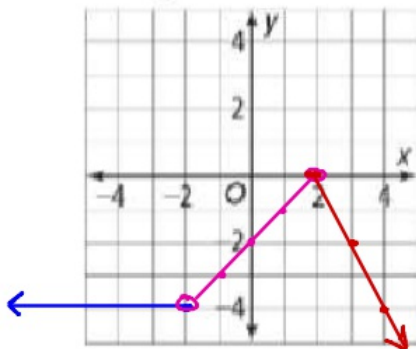
x	y
-2	-4
-3	-4
-4	-4

$-2 < x < 2$

x	y
-2	-4
-1	-3
0	-2
1	-1
2	0

$x \geq 2$

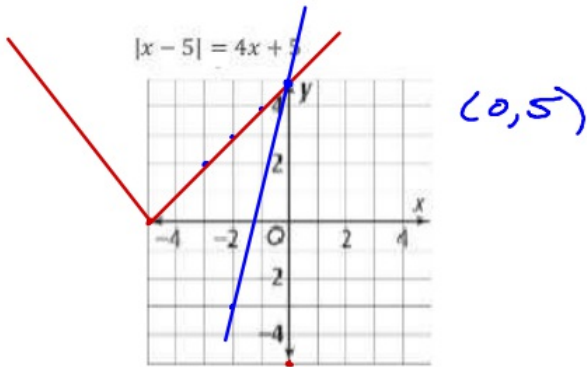
x	y
2	0
3	-2
4	-4



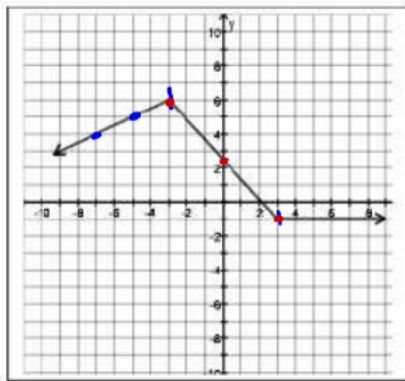
5. Use your calculator to graph and Solve $|x - 2| - 2 = (x + 5)^2$

6. Use your calculator to graph and Solve $|x + 2| - 4 \leq 0$ by graphing.

7. Graph the following equation by hand and determine the solution



8. Write the rule that defines the function in the following graph



$$\begin{aligned}
 x &\leq -3 \\
 m &= \frac{1}{2} \\
 (-7, 4) \\
 4 &= \frac{1}{2}(-7) + b \\
 4 &= -\frac{7}{2} + b \\
 4 &= -\frac{7}{2} + b \\
 \frac{15}{2} &= 7.5 = b \\
 y &= \frac{1}{2}x + 7.5
 \end{aligned}$$

$$\begin{aligned}
 -3 < x < 3 & \quad x \geq 3 \\
 m &= -\frac{7}{6} & y &= -1 \\
 y &= -\frac{7}{6}x + 2.5
 \end{aligned}$$

$$f(x) = \begin{cases} \frac{1}{2}x + 7.5 & x \leq -3 \\ -\frac{7}{6}x + 2.5 & -3 < x < 3 \\ -1 & x \geq 3 \end{cases}$$

10. Solve the system of equations algebraically

$$\textcircled{1} \quad -6x - 2y - z = -17$$

$$\textcircled{2} \quad 5x + y - 6z = 19$$

$$\textcircled{3} \quad -4x - 6y - 6z = -20$$

$$\begin{array}{l} E_2 \cdot 4 + E_1 \cdot 5 \\ (4x - 13z = 21) \cdot 13 \\ (26x - 42z = 94) \cdot 2 \end{array}$$

$$\begin{array}{r} 52x - 169z = 273 \\ (-) \quad 52x - 84z = 188 \\ \hline -85z = 85 \\ \textcircled{z = -1} \end{array}$$

$$\begin{array}{l} 5(2) + y - 6(-1) = 19 \\ 10 + y + 6 = 19 \\ y + 16 = 19 \\ y = 3 \end{array}$$

$$\begin{array}{l} E_2 \cdot 1 + E_1 \cdot 2 \\ -6x - 2y - z = -17 \\ (+) \quad 10x + 2y - 12z = 38 \\ \hline \textcircled{4} \quad 4x - 13z = 21 \end{array}$$

$$\begin{array}{l} E_2 \cdot 2 + E_1 \cdot 3 \\ 30x + 6y - 36z = 114 \\ (+) \quad -4x + 6y - 6z = -20 \\ \hline \textcircled{5} \quad 26x - 42z = 94 \end{array}$$

$$\begin{array}{l} 4x - 13(-1) = 21 \\ 4x + 13 = 21 \\ 4x = 8 \\ \textcircled{x = 2} \end{array}$$

$$(2, 3, -1)$$