

Summer 2020 MATH 115 Quiz 1

In order to receive credit, show all work!

1. 6 pts. Given the function: $f(x) = -3x^2 + 11x - 5$

1 pt. A. Find $f(-2)$

2 pts. B. Solve $f(x) = 1$

3 pts. C. Find and simplify the difference quotient $\frac{f(x+h)-f(x)}{h}$ for the function.

2. 3 pts. Given the function: $f(x) = \frac{x+2}{1-\sqrt{x-2}}$ Find the domain of $f(x)$. Use interval notation.

3. 9 pts. Use exact values and interval notation in your answers. Given the piecewise defined function:

$$g(x) = \begin{cases} \frac{1}{2}x + 2 & \text{for } -8 \leq x < -2 \\ -x^2 + 5 & \text{for } -2 \leq x < 0 \\ -\frac{1}{2}x + 5 & \text{for } 0 \leq x < 8 \end{cases}$$

2 pts. A. Graph the function.

2 pts. B. Find the domain of the function. Write your answer in interval notation.

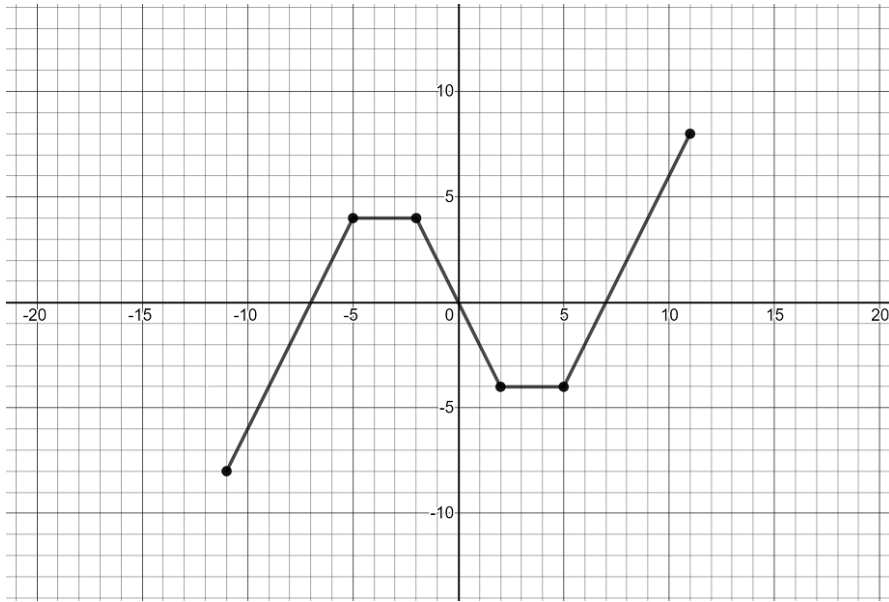
2 pts. C. Find the range of the function. Write your answer in interval notation.

1 pt. D. Solve $g(x) = 4$

1 pt. E. Determine where $g(x)$ is increasing. Use interval notation for your answer.

1 pt. F. Is $g(x)$ even, odd, or neither?

4. 12 pts. Given the function $f(x)$ graphed below, find the following:



1 pt. A. Find the x intercept(s).

3 pts. B. Solve $f(x) = 2$

1 pt. C. Is $f(x)$ even, odd, or neither?

3 pts. D. Solve $f(x) \leq 0$. Use interval notation.

4 pts. E. Graph the transformation $y = -\frac{1}{2}f(x - 3)$. You can sketch on the graph above or create a new graph. If you make a new graph, be sure to clearly label your axes with the scale used.