

NAME: KEY

YOUR GRADE IS BASED ON THE PROCESS AS WELL AS THE FINAL RESULT. SHOW ALL YOUR STEPS CLEARLY SO YOU WILL BE ELIGIBLE FOR THE MOST PARTIAL CREDIT. YOU MAY USE A CALCULATOR, BUT NO NOTES, BOOKS, OR OTHER STUDENTS. GOOD LUCK!

1.) (6 pts.) Use the function formula

$$m(x) = \begin{cases} -\frac{3x}{2} - \frac{9}{2} & \text{if } -5 \leq x \leq -3 \\ -\sqrt{4 - (x+1)^2} & \text{if } -3 < x \leq 1 \\ x - 1 & \text{if } 1 < x \leq 3 \\ -x + 5 & \text{if } 3 < x \leq 5 \end{cases}$$

to compute the following.

$$\text{a.) (2 pts.) } m(-4) = \frac{-3(-4)}{2} - \frac{9}{2} = \frac{12}{2} - \frac{9}{2} = \frac{3}{2}$$

$$\text{b.) (2 pts.) } m(0) = -\sqrt{4 - (0+1)^2} = -\sqrt{4-1} = -\sqrt{3}$$

$$\text{c.) (2 pts.) } m(\pi) = -\pi + 5$$

2.) (4 pts.) Find the natural domain of the function $f(x) = \frac{4}{\sqrt{x-7}}$.

$$x - 7 > 0 \quad (\text{can't have negative under } \sqrt{\text{ sign}} \\ \text{and can't have 0 in} \\ \text{denominator})$$

$$x > 7$$

Alternate ways to write it: $(7, \infty)$ or $7 < x < \infty$
or in words