

AFM Unit 1 Retest Remediation

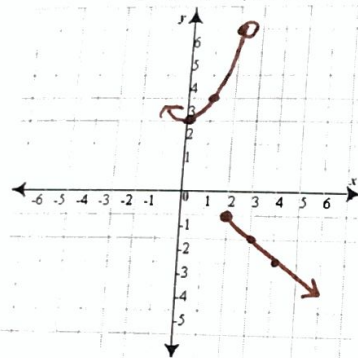
1. Find the domain of the functions

$$f(x) = \frac{2x}{x^2 - 4} \quad \text{and} \quad f(x) = \frac{1}{\sqrt{x-5}} > 0$$

$$(-\infty, -2) \cup (-2, 2) \cup (2, \infty) \quad (5, \infty)$$

2. Graph the piecewise function

$$f(x) = \begin{cases} x^2 + 3, & x < 2 \\ -x + 1, & x \geq 2 \end{cases}$$



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

5. Find the following information using the graph below.

$$f(-2) = \underline{3}$$

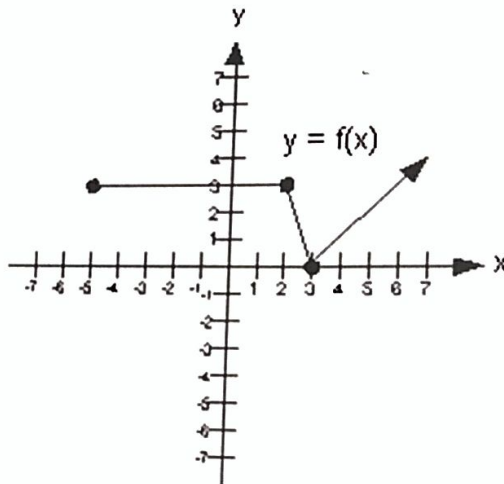
$$f(3) = \underline{0}$$

$$\text{Domain: } \underline{[-5, \infty)} \quad \text{Range: } \underline{[0, \infty)}$$

$$\text{Increasing: } \underline{(3, \infty)}$$

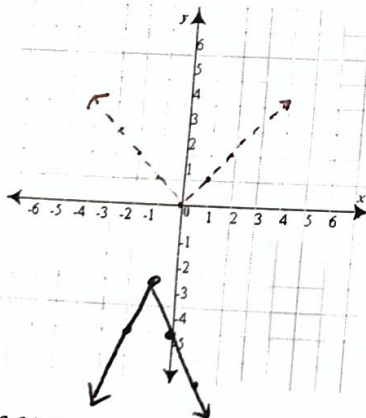
$$\text{Decreasing: } \underline{(2, 3)}$$

$$\text{Constant: } \underline{(-5, 2)}$$



3. Graph the function

$f(x) = -2|x + 1| - 3$ and identify the transformations and the domain and range of the new function.



Parent $y = |x|$

- Reflection across x
- Vertical stretch by 2
- left 1
- down 3

6. A salesman makes a monthly salary of \$1800 plus commission based on the sales he makes in the month. He earns 2.5% commission for sales up to \$15,000. Anything he sells over \$15,000, he earns 4% commission. Write a piecewise function for this scenario and find out how much he will make in a month if he sells \$12,500 and if he sells \$25,000.

$$f(x) = \begin{cases} 1800 + .025x & 0 \leq x \leq 15000 \\ 2175 + .04(x - 15000) & x > 15000 \end{cases}$$

$$12500 = \$2112.50$$

$$25000 = \$2575$$

If $f(x) = 3x - 1$, find:

a. $f(-3) = \underline{-10}$

b. $\frac{f(a+h) - f(a)}{h} = \frac{3(a+h) - 1 - (3a - 1)}{h}$

$$\frac{3a + 3h - 1 - 3a + 1}{h}$$

$$\frac{3h}{h}$$

$$\frac{3h}{h}$$

$$\underline{\underline{3}}$$