

**SPLIT FUNCTIONS – Writing Split Functions Given the Graph**

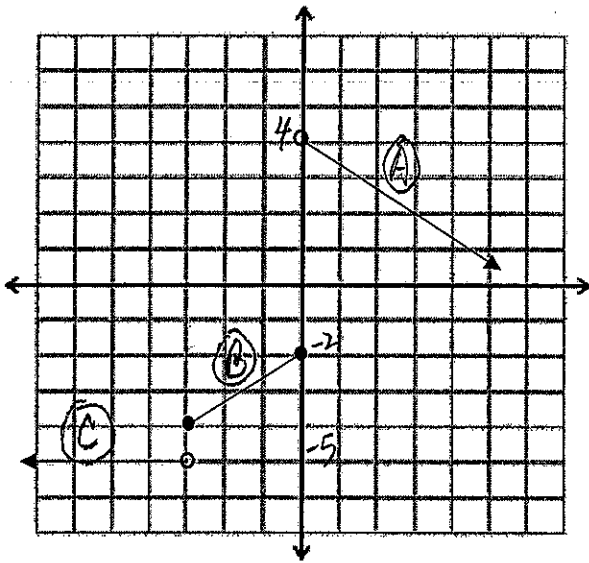
Write the function to the graph below.

Treat each segment as if it is a line. Write that expression  
Then look to see what the domain is for that segment and write it.

Think: y is \_\_\_\_\_ when x is \_\_\_\_\_

Write D/R of  $f(x)$ .

$$f(x) = \begin{cases} \textcircled{A} -\frac{2}{3}x + 4, & x > 0 \\ \textcircled{B} \frac{2}{3}x - 2, & -3 \leq x \leq 0 \\ \textcircled{C} -5, & x < -3 \end{cases}$$



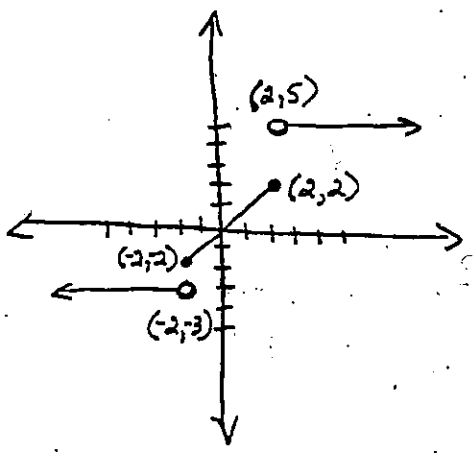
$$D: (-\infty, \infty)$$

$$R: (-\infty, 4)$$

AACHD  
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○ For each, find the domain + range.

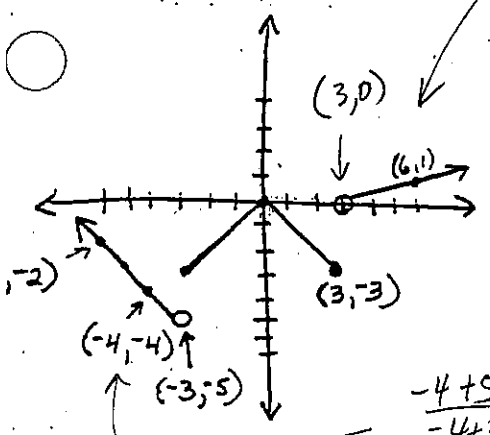
① Find the Function.



$$f(x) = \begin{cases} 5, & x < -2 \\ x, & -2 < x < 2 \\ 5, & x > 2 \end{cases}$$

② Find the Function.

$$m = \frac{0-1}{3-6} = \frac{-1}{-3} = \frac{1}{3} \quad b = -1$$



$$f(x) = \begin{cases} -x-8, & x < -3 \\ -|x|, & -3 \leq x \leq 3 \\ \frac{1}{3}x-1, & x > 3 \end{cases}$$

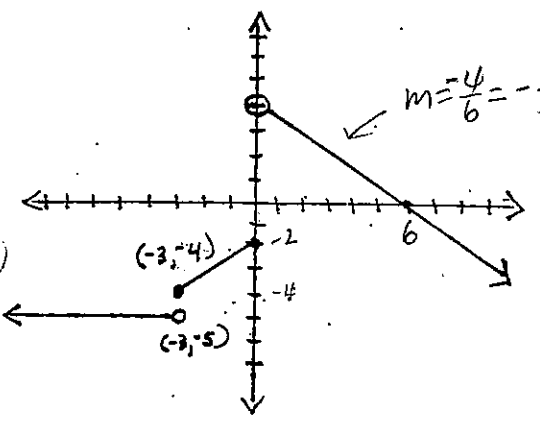
$$\frac{-4+5}{-4+3} = \frac{1}{-1} = -1$$

$$y = mx + b$$

$$-4 = -1(-4) + b$$

$$-8 = b$$

③ Find the Function.



$$f(x) = \begin{cases} -5, & x < -3 \\ \frac{2}{3}x-2, & -3 \leq x \leq 0 \\ -\frac{2}{3}x+4, & x > 0 \end{cases}$$

$$m = \frac{-4}{6} = -\frac{2}{3}$$