

1. Take f to be the function that is given by

$$f(x) = \frac{x-3}{(x-3)(x+5)}$$

Determine the domain of f .

Cannot allow division by zero:

$$(x-3)(x+5) = 0$$

$$\Rightarrow x-3=0 \text{ or } x+5=0$$

$$x=3 \quad x=-5$$

$$\mathbb{R} \setminus \{-5, 3\} = (-\infty, -5) \cup (-5, 3) \cup (3, \infty)$$

2. Create a linear function with a slope of $m = -3$.

Many answers. Here are two possibilities:

- $f(x) = -3x + 1$

- $f(x) = -3x$

3. Write the equation of the linear function whose slope is 2 and that passes through $(4, -1)$.

$$m=2, P=(4, -1) \Rightarrow y = m(x - x_1) + y_1$$

$$y = 2(x - 4) - 1$$

or

$$y = 2x - 9$$

4. Give an example of a monomial with degree 4.

many answers. Here are two possibilities

- $f(x) = x^4$

- $f(x) = -3x^4$