

1) Answer: A

Explanation:

Recall that in finding the domain of a function, we need to consider two things:

- The denominator must not be 0
- The quantity under the square root sign must be nonnegative.

Since the given function $f(x) = \frac{2-x}{x+4}$ only contains a denominator, then we will just be dealing with the first consideration that the denominator must not be 0.

For this reason, we will find the value of x that will make the denominator zero and exclude it in the domain.

To determine that value of x , we equate the denominator to zero.

$$x + 4 = 0$$

$$x = -4$$

Transposition method

Therefore, the value of x that will make the denominator 0 is -4 . We will exclude -4 in the domain.

This means that the domain of the given function is the set of all real numbers except -4 . In symbols, $D = \{x \mid x \in \mathbb{R}, x \neq -4\}$

2) Answer: B

Explanation:

To find the inverse of $f(x) = 2x - 1$, we start by expressing $f(x)$ as y :

$$f(x) = 2x - 1$$

$$y = 2x - 1$$

Afterwards, we interchange x and y in the function:

$$x = 2y - 1$$

Solving for y in terms of x :

$$x + 1 = 2y$$

Transposition method

$$\frac{x+1}{2} = \frac{2y}{2}$$

Dividing both sides by 2

$$\frac{x+1}{2} = y$$

$$y = \frac{x+1}{2}$$

Symmetric property of equality

Lastly, we just express y as $f^{-1}(x)$:

$$f^{-1}(x) = \frac{x+1}{2}$$

Hence, the answer is $f^{-1}(x) = \frac{x+1}{2}$

3) Answer: D

Explanation:

We let x represent the number of flower pots.

This means that $70x$ represent the cost of x units of flower pots

Since Jessica's flower shop also charges a Php 40 delivery fee, then the total amount Matt needs to pay if he buys x units of flower pots will be $70x + 40$.

Thus, the function that represents the Matt's total cost if he buys x units of flower pots is: $C(x) = 70x + 40$

4) Answer: A

Explanation:

Using the function we have obtained in item #3 (which is $C(x) = 70x + 40$), let us determine how much will be Matt's total cost if he buys 8 flower pots.

This means that we have to input $x = 8$ to the function:

$$C(x) = 70x + 40$$

$$C(8) = 70(8) + 40$$

$$C(8) = 560 + 40$$

$$C(8) = 600$$

Thus, Matt will pay Php 600 if he buys 8 flower pots from Jessica's flower shop.

5) Answer: A

Explanation: Since the given function is a quadratic function, it automatically means that its domain is the set of all real numbers. Take note that all real numbers can be input to a quadratic function with a resulting output that is also a real number.