

1. Let $f(x) = \begin{cases} 25x^2 - 4 & \text{if } x < 1 \\ 3x - 7 & \text{if } x \geq 1 \end{cases}$ Find the values of $f(0)$, $f(1)$ and $f(2)$

2. Find the domain of the function $f(x) = \frac{3x - 7}{\sqrt{x^2 - 4}}$.

3. Let $f(x) = x^2 + 2x - 1$ Simplify the expression $\frac{f(x+h) - f(x)}{h}$

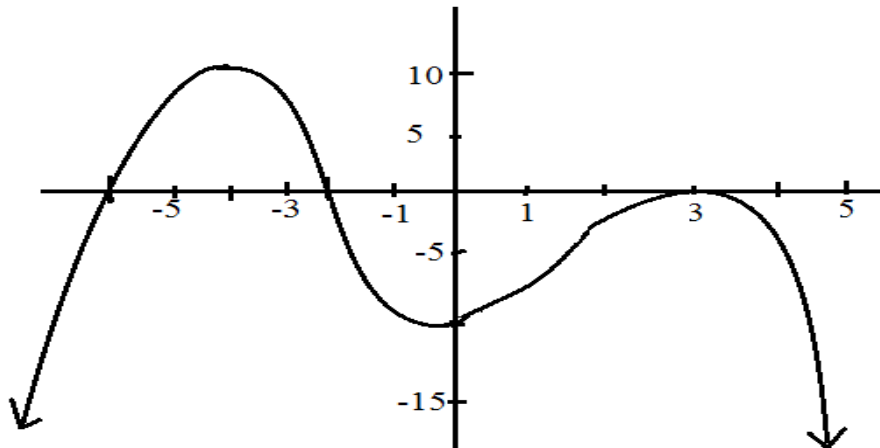
4. Sketch the graphs of these functions and find the x-and y-intercepts.

a) the function in #1

b) $f(x) = x^2 - 5$

c) $f(x) = (x + 4)^2 + 1$

5. Given the sketch of the function $f(x)$ answer these questions:



- Find the domain of $f(x)$
- Find the range of $f(x)$
- $f(-2) =$ $f(-1) =$ $f(0) =$ $f(3) =$
- Determine the intervals of which $f(x)$ is increasing.
- Determine the intervals of which $f(x)$ is decreasing.
- Find all local maximum values of $f(x)$ and x values where they occur.
- Find all local minimum values of $f(x)$ and x values where they occur.
- Find all values x where $f(x) = 0$.
- Find all values x where $f(x) < 0$.
- Find all values x where $f(x) > 0$.