

1) Solve the following equations:

a) $x^2 - 3x = -2$?

$$x^2 - 3x + 2 = 0$$

$$(x-2)(x-1) \rightarrow \begin{matrix} x-2=0 \\ x=2 \end{matrix} \text{ or } \begin{matrix} x-1=0 \\ x=1 \end{matrix}$$

$$x = +2 \text{ or } x = +1$$

b) $\sqrt{5x+1} = 4$?

$$\sqrt{5x+1} = 4^2$$

$$5x+1 = 16$$

3

$$5x = 16 - 1$$

$$\frac{5x}{5} = \frac{15}{5}$$

$$x = 3$$

2) Find the domain of each of the following functions:

i) $f(x) = \sqrt{2x-1}$

$$\sqrt{2x-1} \geq 0$$

$$2x-1 \geq 0$$

$$\frac{2x}{2} \geq \frac{1}{2}$$

$$x \geq \frac{1}{2}$$

$$\left[\frac{1}{2}, +\infty\right)$$

ii) $f(x) = \frac{3}{\sqrt{2x-1}}$

$$\sqrt{2x-1} > 0$$

$$2x-1 > 0$$

$$\frac{2x}{2} > \frac{1}{2}$$

$$x > \frac{1}{2}$$

$$\left(\frac{1}{2}, +\infty\right)$$

iii) $f(x) = \sqrt[3]{5x+2}$

because $\sqrt[3]{5x+2}$ definite at all the real numbers its domain $\Rightarrow (-\infty, +\infty)$

iv) $f(x) = \frac{15x^4 + 5x^2}{2x^2 - x^3}$

$$\{x: x \neq 0, x \neq 2\}$$

$$2x^2 - x^3 = 0$$

$$x^2(2-x) = 0$$

$$x^2 = 0 \rightarrow x = 0, x = 2$$

(unavailable)

3) Find the x- and y- intercepts of the graph for the following equation.

a) $y = x^2 - 4$

$$0 = x^2 - 4$$

Let $y = 0$

$$\sqrt{4} = \sqrt{x^2}$$

$$\sqrt{4} = x$$

$$\pm 2 = x$$

$$x = +2$$

$$x = -2$$

x-intercept $\Rightarrow (+2, 0) (-2, 0)$

let $x = 0$

$$y = (0)^2 - 4$$

$$y = 0 - 4$$

$$y = -4$$

y-intercept $\Rightarrow (0, -4)$

With best wishes

*the x and y intercepts are $(+2, 0) (0, -4)$