Nome: Giulia Ventura Favaro – 1DS

pág 129

(47) a) $f(x) = x^2 - 2x - 3$

Vértice: $V = (x_v; y_v)$

$x_v = \frac{-b}{2a} \longrightarrow \frac{-(-2)}{2.1} = 1$

$y_v = f(x_v) \longrightarrow 1^2 - 2.1 - 3 = -4 \quad V = (1; -4)$

b) $f(x) = -x^2 + 3x - 5$

$x_v = \frac{-b}{2a} \longrightarrow \frac{-3}{2.(-1)} = \frac{-3}{-2} = 1,5$

$y_v = f(x_v) \longrightarrow -1,5^2 + 3.1,5 - 5 = -2,75$

c) $f(x) = x^2 - 4x + 3$

$x_v = \frac{-b}{2a} \longrightarrow \frac{-(-4)}{2.1} = 2$

$y_v = f(x_v) \longrightarrow 2^2 - 4.2 + 3 = -1 \quad V = (2; -1)$

d) $y = x^2$

$x = 0 \quad (0;0)$

e) $y = (x-2)^2 + 3$

$y = x^2 - 4x + 4$

$x_v = \frac{-b}{2a} \longrightarrow \frac{-(-4)}{2.1} = 2$

$y_v = f(x_v) \longrightarrow 2^2 - 4.2 + 4 = 0 \quad V = (2;0)$

(53) a) $c = x^2 - 80x + 3000$

$x_v = \frac{-b}{2a} \longrightarrow \frac{-(-80)}{2} = 40$ unidades

b) $y_v = f(x_v) \longrightarrow 40^2 - 80.40 + 3000 = 1400$

(55) DESAFIO!

$f(x) = x^2 - 4x + 7 \quad f: A \to [3;7]$

$x_v = \frac{-b}{2a} \longrightarrow \frac{-(-4)}{2.1} = 2$

$y_v = f(x_v) \longrightarrow 2^2 - 4.2 + 7 = 3$

$3 < 7 \to 7 - 3 = 4 \longrightarrow 4^2 - 4.4 + 7 = 7$

57) $f(t) = -t^2 + Bt - 156 \qquad 8 < t < 20$

$-12^2 + 12B - 156 = 0$

$-144 - 156 = 12B$

$-300 = -12B$

$\frac{300}{12} = B$ $\qquad B = 25$

$-t^2 + 25t - 156 = 0$

$t^2 - 25t + 156 = 0$

$\frac{-b \pm \sqrt{b^2 - 4.a.c}}{2.a} \rightarrow t_1 = \frac{-(-25) + \sqrt{(-25)^2 - 4.1.156}}{2.1}$

$\frac{25 + \sqrt{625 - 624}}{2} = \frac{25 + 1}{2} = \underline{\underline{13}}$

$t_2 = \frac{-(-25) - \sqrt{(-25)^2 - 4.1.156}}{2.1}$

$t_2 = \frac{25 - \sqrt{625 - 624}}{2} = \frac{25 - 1}{2} = \underline{\underline{12}}$

59) $h(t) = 3t - 3t^2$

a) $3t - 3t^2 = 0$

$3t^2 = 3t$

$t = 1$ segundo

b) $h(t) = 3 - 6t = 0$

$t = 0,5\,s$

$h(0,5) = 3 \cdot 0,5 - 3 \cdot 0,5^2 = 0,75$ metros