Atividade 2 de Cálculo

1) $R(t) = at + b$ $R * 1000$ t en meses

$R(1) = -2$ e $R(2) = 3$ $R(4) = ?$

$R(1) = a \cdot 1 + b = -2$ $R(2) : 2a + b = 3$

$\boxed{b = -2 - a}$ $R(2) = 2a + (-2 - a) = 3$

                                    $a - 2 = 3$

$b = -2 - (5)$ $a = 5$

$b = -7$

$R(t) = 5t + (-7)$ $R(4) = 5 \cdot 4 - 7 = 13$

Rendimento $= \boxed{13000}$

2) $V(t)$

$V(0) = 20.000$ $2000 - 15.200 = 4800 \to 2400$ po ano

$V(2) = 15.200$ en 5 anos $= 12.000$

$V(7) = 3.200$ //

3) $f(x) = ax + b$ $(1, 2)$ e $(0, -1)$ $a^2 \cdot b^{\frac{1}{3}} = ?$

X 1 0 X	$Y = 3x - 1$	$3^2 \cdot \sqrt[3]{-1} = ?$
Y 2 -1 Y	$f(x) = 3x - 1$	
	$a = 3$	$9 \cdot (-1) = -9$
$2x + (-1) = Y - X$	$b = -1$	
$2x - 1 = Y - X$		Resposta -9 //

4) $f(x) = ax^2 + bx + c$

$f(x) = a \cdot (x - x_1) \cdot (x - x_2)$ p/ $\Delta \geq 0$

$x_1 = -1$ $a \cdot (-1^2) + b \cdot (-1) + 3 = 0 \Rightarrow a - b + 3 = 0$

$x_2 = 3$

$c = 3$ $a \cdot (3^2) + b \cdot 3 + 3 = 0 \Rightarrow 9a + 3b + 3 = 0$

$-b = -a - 3 \; (\cdot -1)$ $9a + 3 \cdot (a + 3) + 3 = 0$

$b = a + 3$ $9a + 3a + 9 + 3 = 0$

$ \qquad \qquad 12a + 12 = 0$

$b = -1 + 3 = 2 _{\shortparallel}$ $a = \dfrac{-12}{12} \qquad a = -1 _{\shortparallel}$

$f(x) = -x^2 + 2x + 3$ $\quad x_v = \dfrac{-b}{2a} = \dfrac{-2}{-2} = 1 _{\shortparallel}$

$-x^2 + 2x + 3 = y$ $\qquad V = (1, 4)$

$-1 + 2 + 3 = y$

$y = 4$

X	-1	1	X
Y	0	4	Y

$-4 + Y = -Y + 4x$

$2Y = 4x + 4$

$Y = \dfrac{4x + 4}{2}$

$Y = 2x + 2 _{\shortparallel}$

5) $y = x^2 - (m-3)x + 5$ $V_x = 1$ $V_y = ?$

$$X_v = \frac{-b}{2a} \qquad \frac{-b}{2a} = 1$$

$-\dfrac{m-3}{2} = 1$ $y = x^2 - 2x + 5$

$m = 5$ $y = 1^2 - 2 + 5$

$$y = 4_{,,}$$

6) $h = 10 + 6t - t^2$ $t = \text{tiempo(s)}$ $h = \text{altura}$
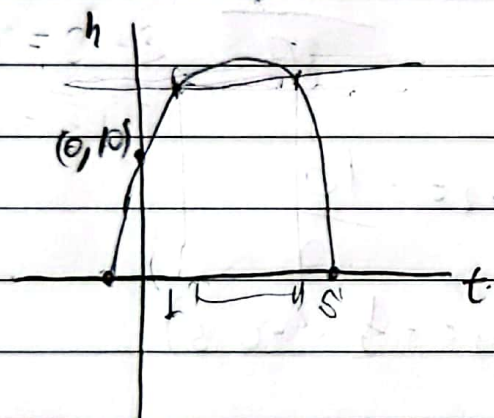
$15 = 10 + 6t + t^2$

$-t^2 + 6t - 5 = 0$

$\Delta = b^2 - 4 \cdot a \cdot c$

$\Delta = 6^2 - 4 \cdot 1 \cdot (-5)$

$\Delta = 36 - 20$

$\Delta = 16$

$$\frac{-b \pm \sqrt{\Delta}}{2a} = \quad X' = \frac{-6 + 4}{-2} \qquad X'' = \frac{-6 - 4}{-2}$$

$X' = +1$ $X'' = +5$ $t \to y > 15 = 4$

$t = 5 - 1 = 45_u$

7) $f(x) = x^2 + 2x + 3$ $(1, -7)$ $(0,3)$

$1^2 + 2 \cdot 1 + 3 = -7$

$2 = -7 - 3 - 1$

$2 = -11$

8) $f(x) = 10x^2 + x - 2$

$D = b^2 - 4 \cdot a \cdot c$

$D = 1 - 4 \cdot 10 \cdot (-2)$

$D = 1 + 80$

$D = 81$

$\dfrac{-b \pm \sqrt{D}}{2a}$

$X_1 = \dfrac{-1 + \sqrt{81}}{20}$ $X_2 = \dfrac{-1 - 9}{20}$

$X_1 = \dfrac{8}{20}$

$X_2 = \dfrac{-10}{20}$

$X_1 = \dfrac{2}{5}$ $(0,4)$ $X_1 = -\dfrac{1}{2}$ $(-0,5)$

intersecção $Y = (0, -2)$

Vértice $X = \dfrac{-b}{2a} = \dfrac{-1}{20}$ $(-0,05)$

Vértice $Y = \dfrac{-D}{4a} = \dfrac{-81}{40}$ $(-2,025)$

Resposta = $0,4;\ -0,5;\ (0, -2);\ (-0,05;\ -2,025)$

9) $T_{(t)} = \dfrac{-t^2}{4} + 400$ t em MINUTOS

$t = 0$ destavA A $39°C$ $T_{(t)} = 39$?

$-T_{(0)} = 400$

$-\dfrac{-t^2 + 400}{4} = 39$

$\dfrac{-t^2}{4} = 39 - 400$

$-t^2 = -361 \cdot 4$ $(\times -1)$

$t = \sqrt{1444}$

$t = 38$ MINUTOS $_{\text{H}}$

10) $190m^2 = A$

$A = 190m^2$ x
$\overbrace{}$
$2x + L$
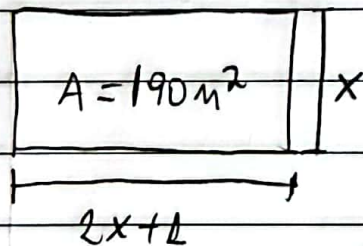
$A = L_1 \cdot L_2$
$A = X \cdot (2x + L)$
$A = 2x^2 + X$

$2x^2 + x = 190$
$2x^2 + x - 190 = 0$

$X_1 = \dfrac{-1 + \sqrt{1521}}{4}$

$X_1 = \dfrac{-1 + 39}{4} = 9,5$

$X_2 = \dfrac{-1 - 39}{4} = -10$

Medida sempre positiva

$D = b^2 - 4 \cdot a \cdot c$
$D = 1 - 4 \cdot 2 \cdot (-190)$
$D = 1 + 1520$
$\Delta = 1521$

Frente = $2 \cdot 9,5 + L = 20m$
Profund. = $9,5m$
Perimetro = $59 - 4_m$ (portão) = $55m$ _H
de Muro