

1) $l_1 = \text{pos}$

$l_2 = \text{null}$

$l_3 = \text{null}$

$l_4 = \text{neg}$

4a) \$0.17/year

b) \$1.90/year

c) \$0.0625/year

d) 0.3 kl/day

8a) The student typed 750 words in 30 minutes, took a 10 min break and then typed 451 more words in 22 min

b) i) 25 wpm ii) 20.5 wpm
iii) 19.37 wpm

c) 1201

9a) \$0.02

ii) \$0.04

b) ~ \$250

ii) ~ \$375

Vision 4.2 (day 2)

Finding the Rule of a Polynomial Function of Degree 1

The rule of a polynomial function of degree 1 (linear function) can be expressed in the form:

$$y = ax + b$$

$$f(x) = ax + b$$

where a represents the rate of change and b represents the initial value (y-intercept).

The r o c (a) is always the coefficient for the x variable. The initial value is the constant.

$$y = 2x + 4$$

$$\text{r o c} = 2$$

$$\text{int value} = 4$$

$$y = 7 + 3x$$

$$\text{r o c} = 3$$

$$\text{int val} = 7$$

$$3x + y + 5 = 0$$

$$y = -3x - 5$$

$$\text{r o c} = -3$$

$$\text{int value} = -5$$

Example: Determine the rule of a polynomial function of degree one passing through the points $(7, 72)$ and $(3, 28)$.

$$y = ax + b \leftarrow \begin{array}{l} \text{initial} \\ \text{value} \end{array}$$

\uparrow
r o c

$$\begin{aligned} a &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{28 - 72}{3 - 7} \\ &= \frac{-44}{-4} \\ &= 11 \end{aligned}$$

$$y = 11x + \boxed{b}$$

sub in one point

$$28 = 11(3) + b$$

$$28 = 33 + b$$

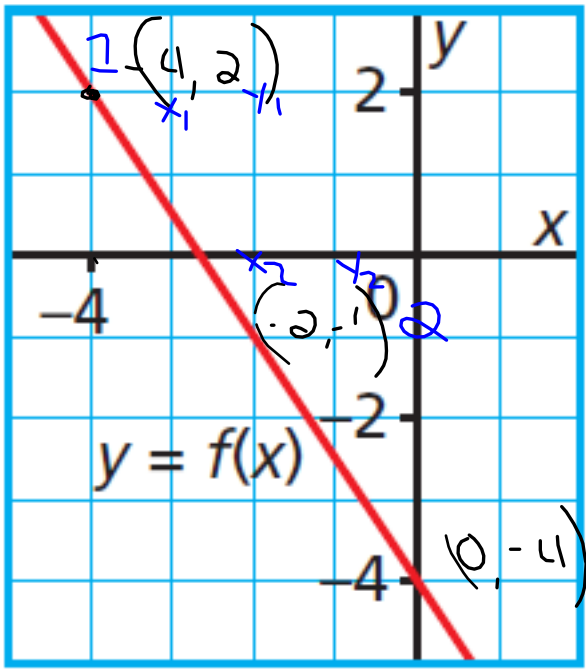
$$-5 = b$$

sub b into my equation

$$y = 11x - 5$$

$$y = 11x + (-5)$$

Example: Determine the rule of a polynomial function of degree one based on the graph below.



$$y = ax + b$$

$$a = \frac{y_2 - y_1}{x_2 - x_1}$$

$$a = \frac{(-1) - (2)}{(-2) - (-4)}$$

$$a = \frac{-3}{2}$$

$$a = -1.5$$

$$y = -1.5x + (-4)$$

$$y = -1.5x - 4$$

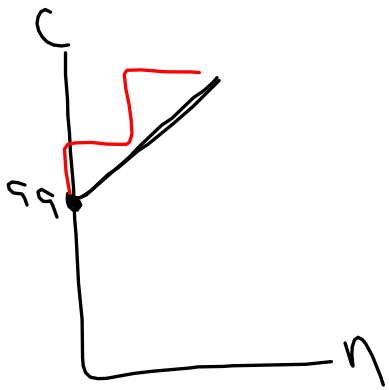
Example: To join a local gym, Karim pays a start-up fee of \$99, plus a monthly fee of \$29. Determine the rule for the total cost, C, in dollars for n months at the gym.

ind = months n

dep = cost C

initial value = 99

roc = 29



$$y = ax + b$$

$$C = an + b$$

$$C = 29n + 99$$

Example: To join a local gym, Karim pays a start-up fee of \$99, plus a monthly fee of \$29. Determine the rule for the total cost, C , in dollars for n months at the gym.

Check Your Understanding

Textbook pg. 189

Questions 2, 3, 5, 12, & 14