
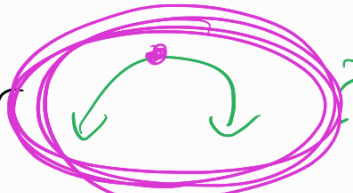


Next HW due next week \leftarrow a little loyer

$$\begin{aligned} &\sim -2(2x^2 + 10x + 12) \\ &-2(2x^2 + 4x + 6x + 12) \end{aligned}$$

Q: Let $f(x) = -2(x+3)(2x+4) = -4x^2 - 20x - 24$

(a) is $f(x)$ going  or 

(b) where's the vertex? \leftarrow Today!!

\rightarrow (c) where are the x & y -intercepts?

y -int: $f(0) = -24$

y -int
 $(0, -24)$

x -int: \leftarrow need factored form

$-2 = 0$ X

$(x+3) = 0 \Rightarrow x = -3$

$(2x+4) = 0 \Rightarrow x = -2$

$(-3, 0), (-2, 0)$

(d) when is $f(x) > 0$? (e) graph

when is $f(x) < 0$?

$f(x)$

x -int: $x = -3, x = -2$

"sign chart"

rep $x = -1$ million

$x = -2.5$

$x = 0$



$x = 0$

result

-1 mil

$x = -2.5$

$-2(x+3)(2x+4)$

$$-2(x+3)(2x+4) \quad -2(x+3)(2x+4)$$

- + -

open interval

~~⇒~~ final answer:

when is $f(x) > 0$? $(-3, -2)$

when is $f(x) < 0$? $(-\infty, -3) \cup (-2, +\infty)$

↑
"union"

Vertex: ← memorize for now

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

$$\text{Vertex}_f = \left(-\frac{b}{2a}, f\left(-\frac{b}{2a}\right) \right)$$

↑
x-coord

$$-4x^2 - 20x - 24$$

$$a = -4 \quad c = -24$$

$$b = -20$$

$$\text{vertex: } x = \frac{-(-20)}{2(-4)} = \frac{20}{-8} = \left(-\frac{5}{2} \right)$$

$$f\left(-\frac{5}{2}\right) = -4\left(-\frac{5}{2}\right)^2 - 20\left(-\frac{5}{2}\right) - 24$$

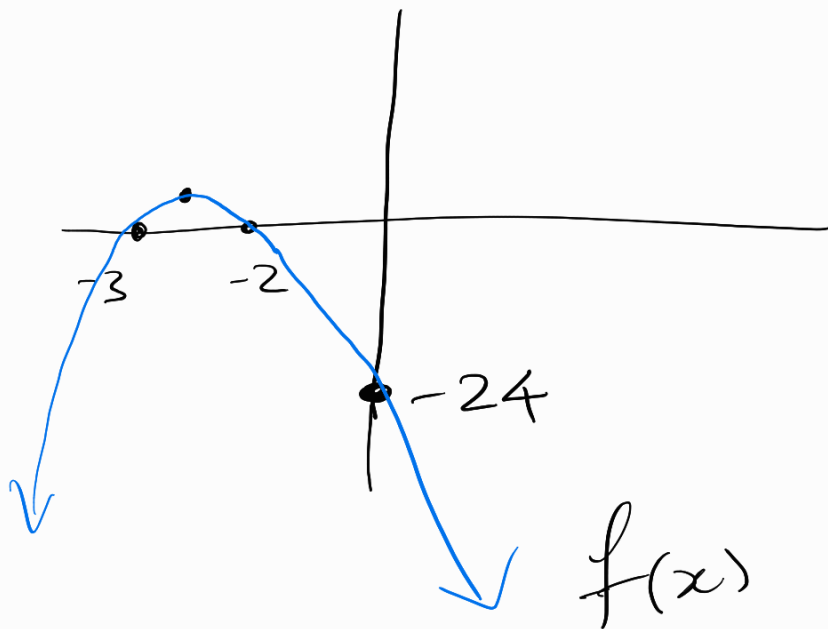
↑
y-coord

$$= -4\left(\frac{25}{4}\right) - \frac{-100}{2} - 24$$

$$= -25 + 50 - 24$$

$$= 1$$

Vertex: $\left(-\frac{5}{2}, 1\right)$



$$f(x) = (x + 2023)(x - 2025)$$

(a) is $f(x)$  or 

(b) Where's vertex? $\left(\underline{\underline{-\frac{b}{2a}}}, \underline{\underline{f\left(-\frac{b}{2a}\right)}} \right)$

(c) Find x -int

y -int

(d) when is $f(x) > 0$?

when is $f(x) < 0$?

