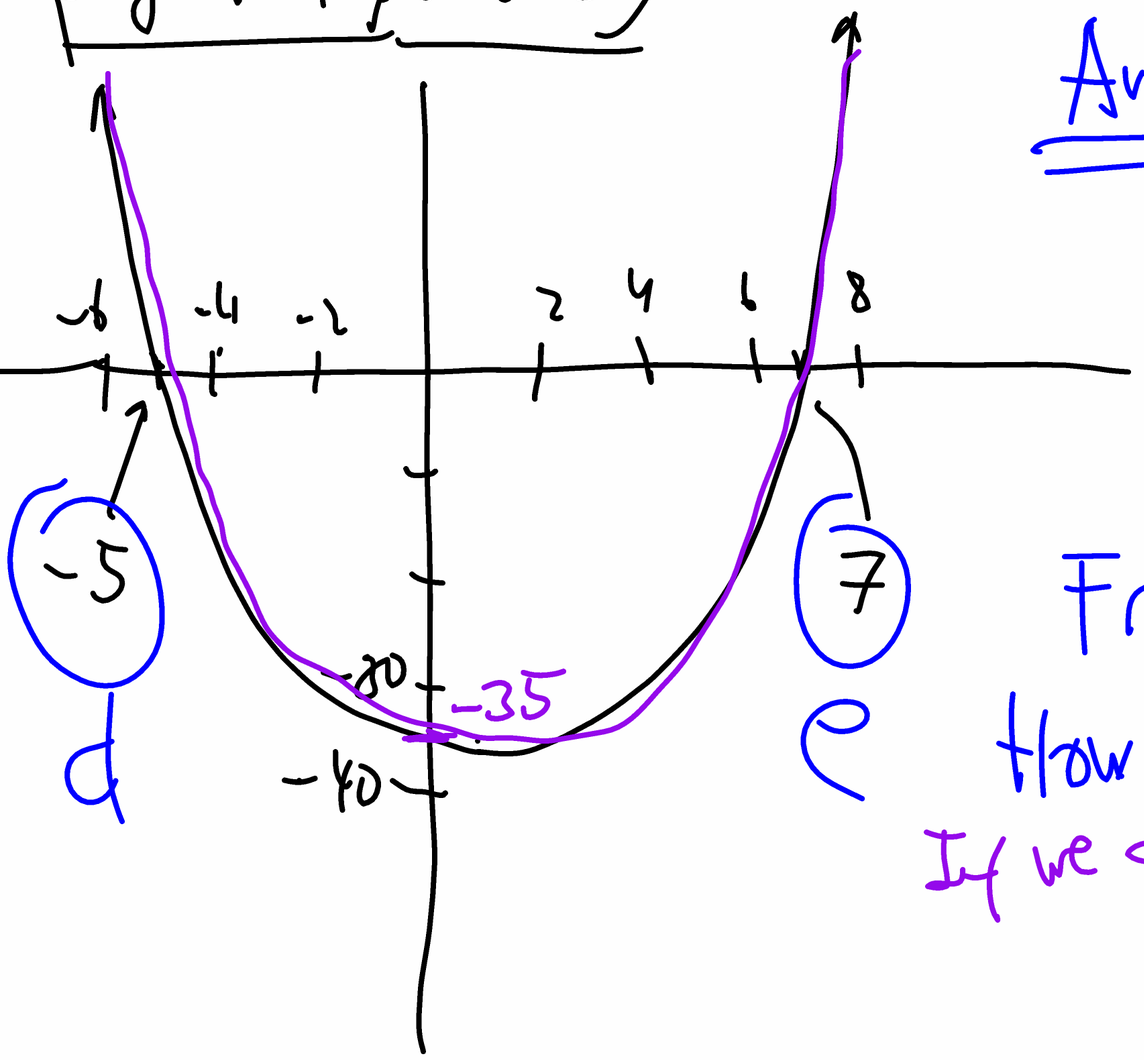
Determine a function given its graph

Thu 28 Feb 2019

(page 149 ; Exer 3)



Ans: When the graph shows 1/2 zeros ⇒ use factor form

$$f(x) = a(x-d)(x-e)$$

$$f(x) = (x+5)(x-7)$$

From graph: $f(x) = a(x+5)(x-7)$

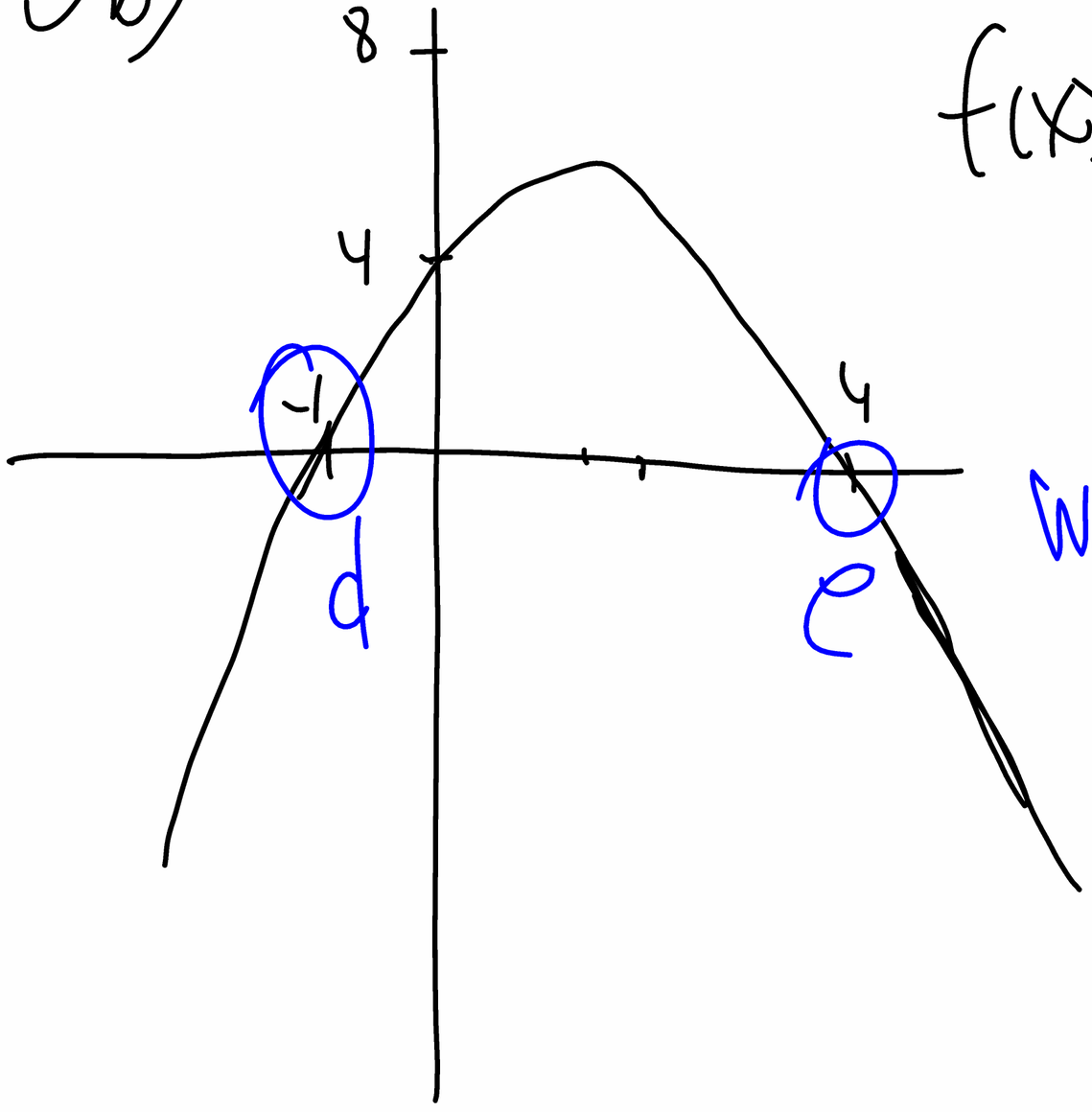
How can we determine a? From graph $f(0) = -35$

If we substitute $x=0$ in $f(x)$

$a(5)(-7) = -35$ ⇒ Hence $\boxed{a=1}$

(-35 must be)

3b)



$$f(x) = a(x-d)(x-c)$$

$$f(x) = a(x+1)(x-4)$$

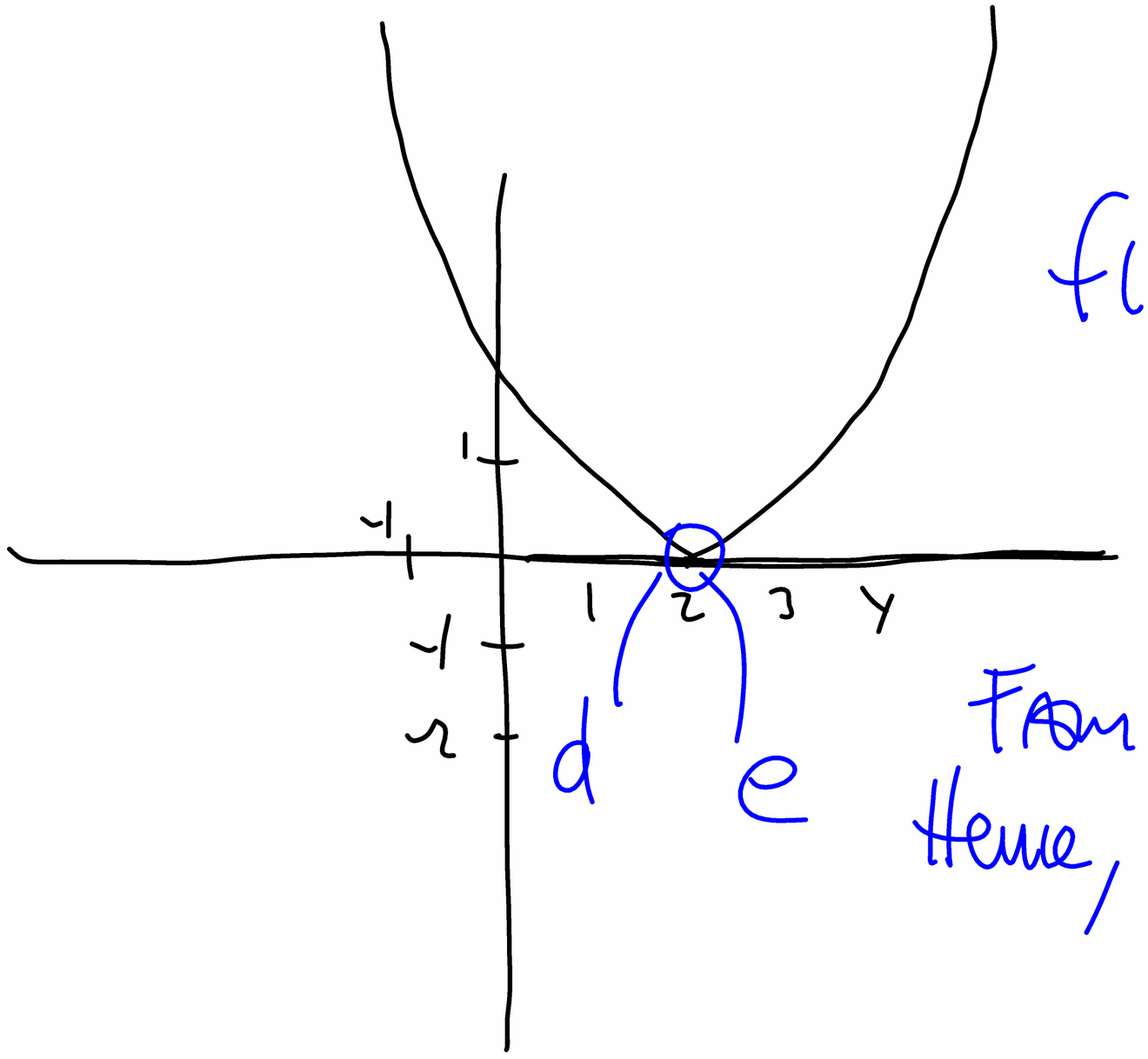
$$f(x) = -(x+1)(x-4)$$

We can clearly identify that

$$f(0) = 4$$

$$a \cdot 1 \cdot (-4) = 4 \rightarrow \boxed{a = \frac{4}{-4} = -1}$$

must be



$$f(x) = \frac{1}{2}(x-2)^2$$

$$f(x) = a(x-d)(x-e)$$

$$d = e = 2$$

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

From graph we can read that $f(0) = 2$

Hence,

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

$$4a = 2 \Rightarrow \boxed{a = \frac{1}{2}}$$