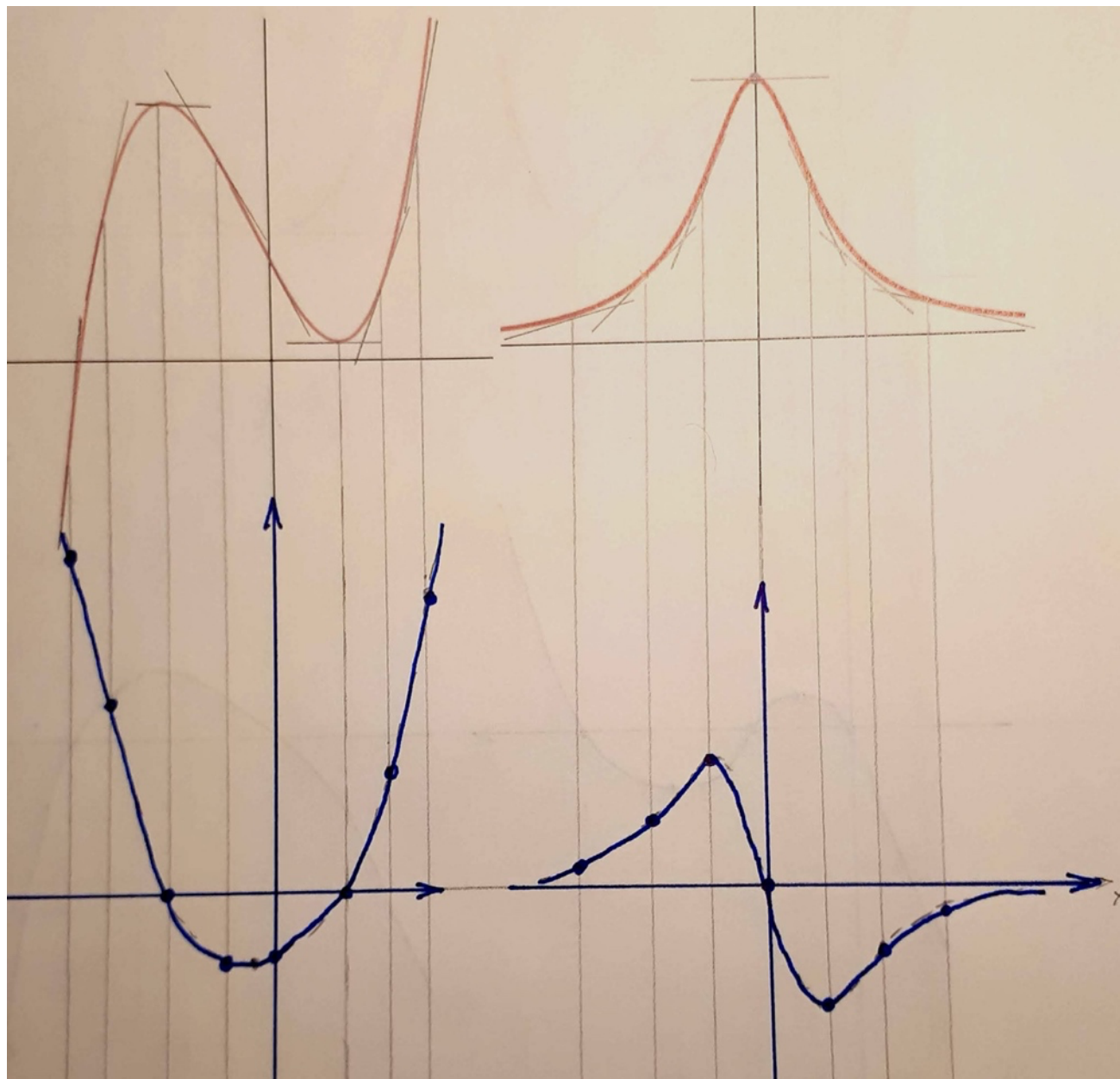


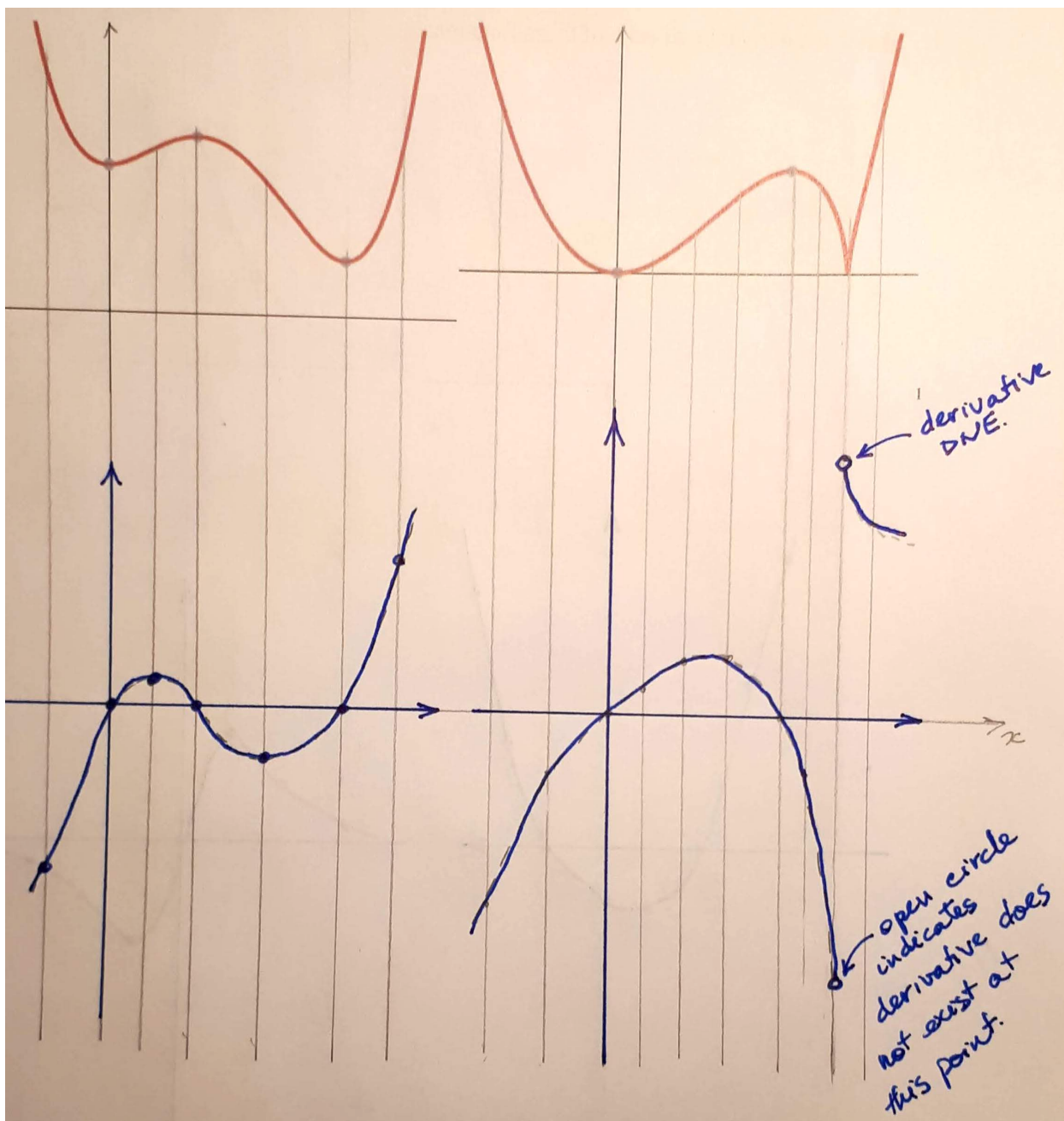
## Exercise set 7.1 Solutions: Sketching Derivatives

1. Sketch the derivative of each of these functions.



2. Sketch the derivative of each of these functions.

1

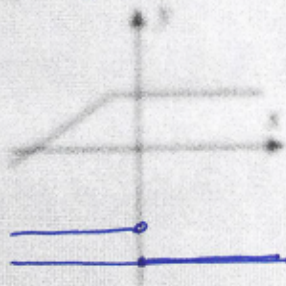


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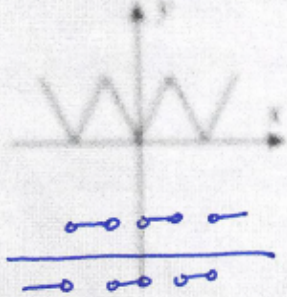

$$1. y = 2x^2(x-1)^{\frac{2}{3}}$$

23. Match the graphs of the functions shown in (a)–(f) with the graphs of their derivatives in (A)–(F).

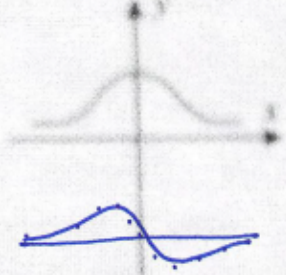
(a)  $\rightarrow D$



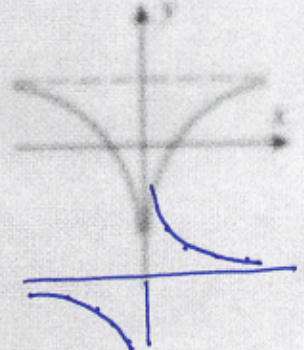
(b)  $\rightarrow F$



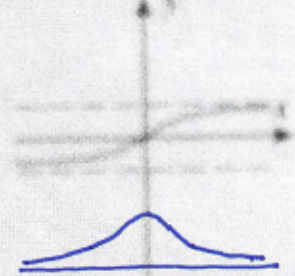
(c)  $\rightarrow B$



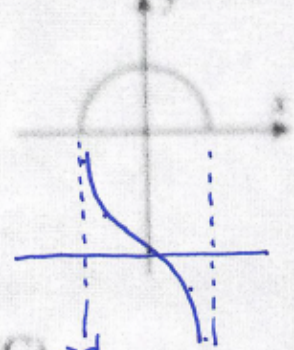
(d)  $\rightarrow C$



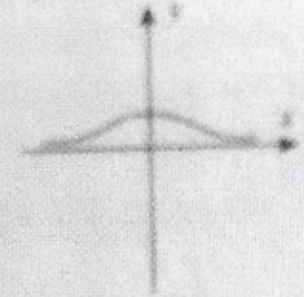
(e)  $\rightarrow A$



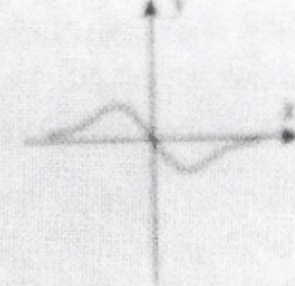
(f)  $\rightarrow E$



(A)  $\rightarrow e$



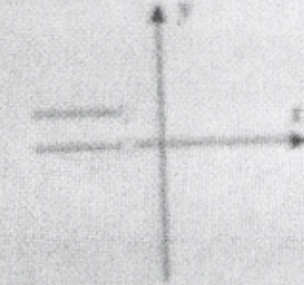
(B)  $\rightarrow c$



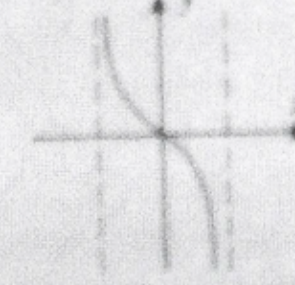
(C)  $\rightarrow d$



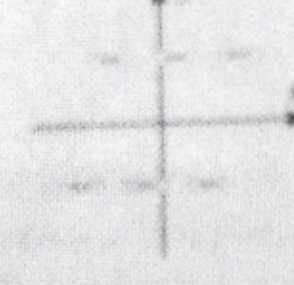
(D)  $\rightarrow a$



(E)  $\rightarrow f$



(F)  $\rightarrow b$



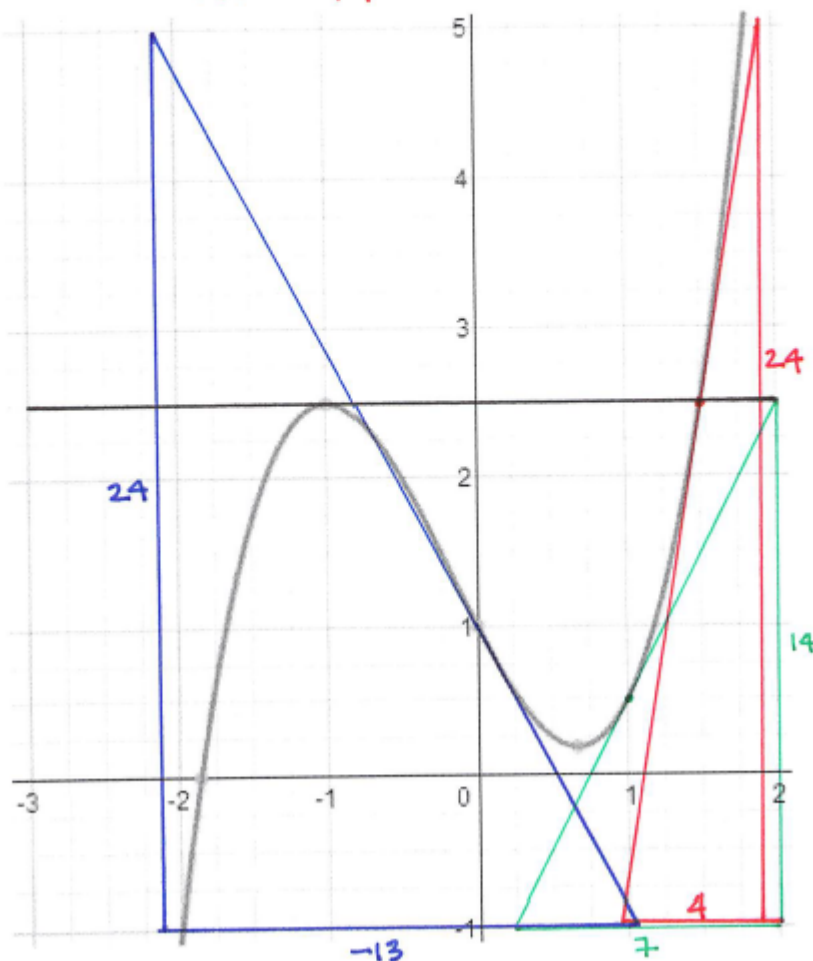
3. Find the derivative of the following function<sup>2</sup> when  $x$  is:

a@ 0 rise = 24, run = -13  $\Rightarrow$  derivative =  $m_{\text{tan}} = 24/-13 \approx \boxed{-1.85}$

b@ 1 derivative =  $m_{\text{tan}} = 14/7 = \boxed{2}$

c@ -1 rise = 0  $\therefore m_{\text{tan}} = \boxed{0}$

d@ 1.5 derivative =  $m_{\text{tan}} = 24/4 = \boxed{6}$



<sup>2</sup> Hint: Since you don't have the equation for  $f(x)$  you'll need to do this graphically. Remember that the derivative just measures the slope of a tangent line at a point on a graph.