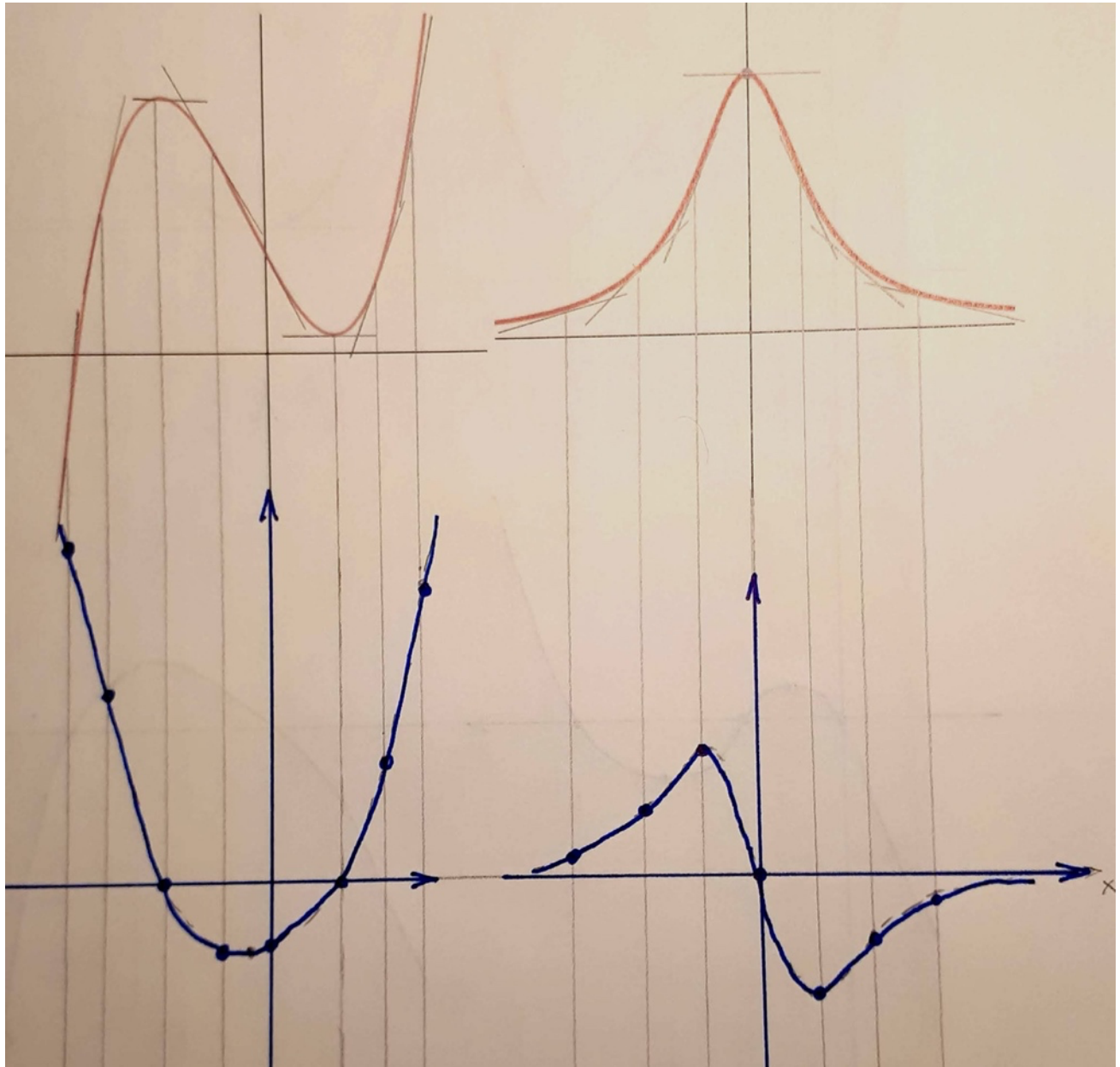


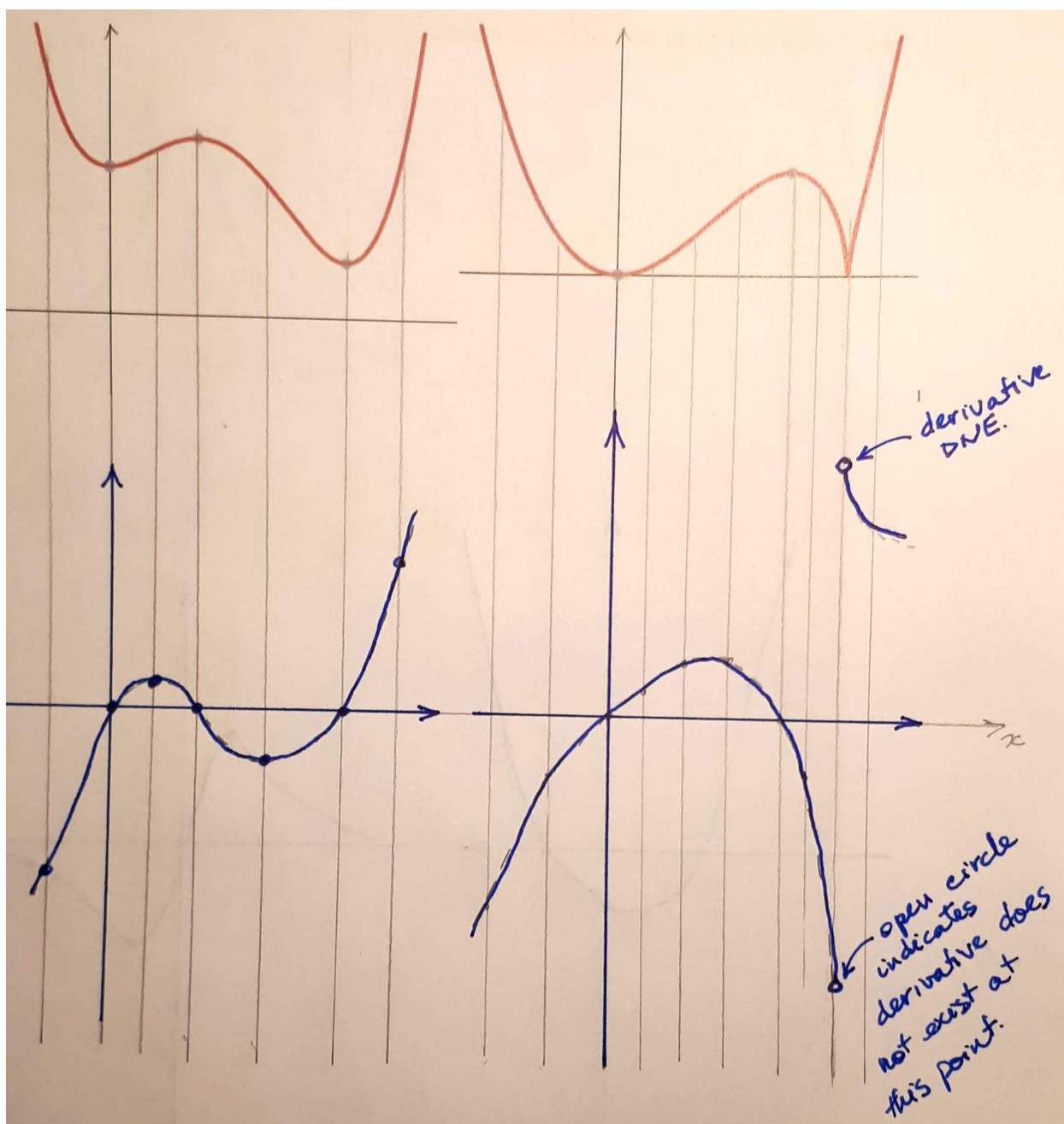
Exercise set 6.1 Solutions: Sketching Derivatives

1. Sketch the derivative of each of these functions.



2. Sketch the derivative of each of these functions.

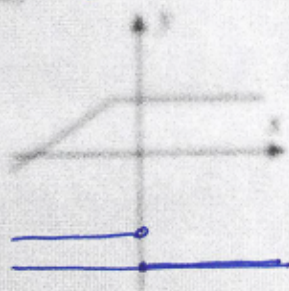
1



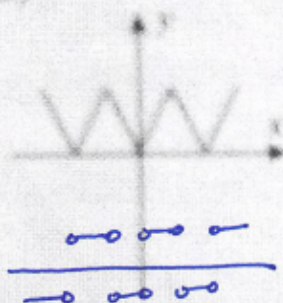
$$1. y = 2x^2(x-1)^{\frac{2}{3}}$$

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

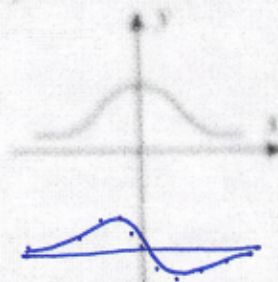
(a) $\rightarrow$ D



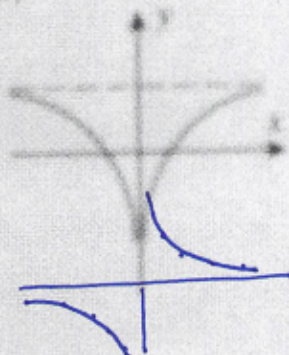
(b) $\rightarrow$ F



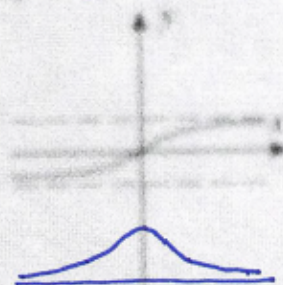
(c) $\rightarrow$ B



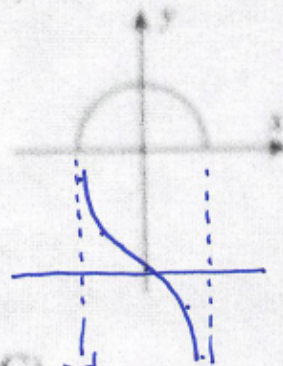
(d) $\rightarrow$ C



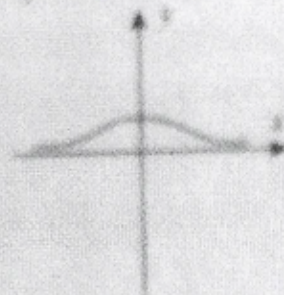
(e) $\rightarrow$ A



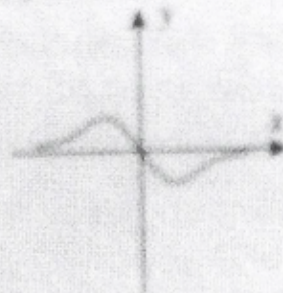
(f) $\rightarrow$ E



(A) $\rightarrow$ e



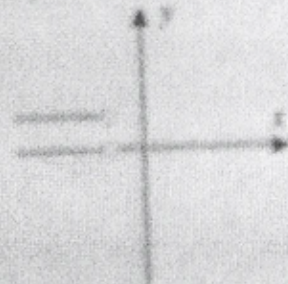
(B) $\rightarrow$ c



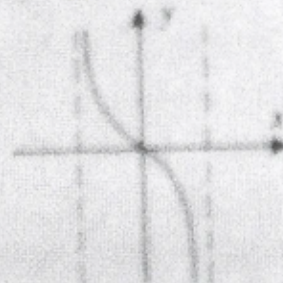
(C) $\rightarrow$ d



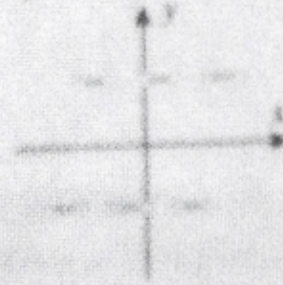
(D) $\rightarrow$ a



(E) $\rightarrow$ f

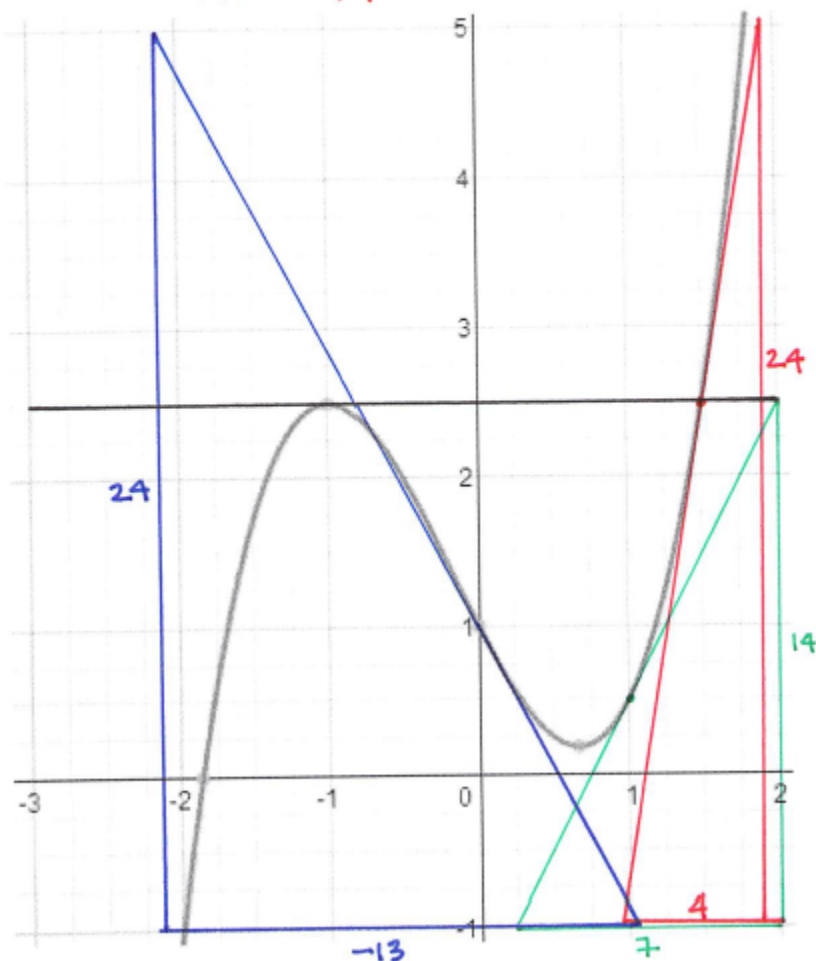


(F) $\rightarrow$ b



3. Find the derivative of the following function² 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 = $m_{\text{tan}} = 24/4 = \boxed{6}$



² 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.