1.) (5 pts. each) Use shortcut rules to find the derivatives of each function. Do not simplify answers.
   
a.) \( y = x^3 \tan x \)

b.) \( f(x) = (7x - 4)^{2/3} \)

c.) \( y = \frac{x^2 - 5x}{\sec x} \)

d.) \( y = \left( \frac{x + 4}{3 - 2x} \right)^5 \)

e.) \( g(x) = 5 + 4 \cos(x^2) \)

f.) \( g(x) = \sin^3(\cos(4x)) \)
3.) (10 pts.) Assume that \( f(x) = x(4 - x)^3 \). Solve \( f'(x) = 0 \) for \( x \).

4.) (5 pts. each) Use the given graph of \( f' \) to estimate each of the following.

a.) the Average Rate of Change (ARC) for \( f \) on the interval \([0, 9]\)

b.) the Average Rate of Change (ARC) for \( f \) on the interval \([5, 13]\)

c.) the Instantaneous Rate of Change (IRC) for \( f \) at \( x = 5 \)