

The Derivative Function: Power Rule and Interpretations

1. Let $F(x) = \frac{80}{x^2}$ be the force between two objects separated by a distance x , where x is measured in meters and $F(x)$ is measured in Newtons.
 - (a) Calculate $F'(x)$ using the power rule.
 - (b) Determine $F'(10)$.
 - (c) What is the practical meaning of $F'(10)$?
2. Let $g(v)$ be the fuel efficiency of a car traveling at v miles per hour. What is the practical meaning of the statement:

$$g'(55) = -0.54 ?$$