1. For each of the following functions, explain in words what the derivative is telling us.

(a) The temperature in degrees Fahrenheit is given by $F(C) = \dfrac{9}{5}C + 32$, where C is the temperature in degrees Celsius.

(b) The number $D(p)$ of donuts that I sell is a function of their price p.

(c) The time $R(T)$ that it takes to cook a 20 lb. turkey is a function of the oven temperature T.

2. Newton's law of gravitation states that the gravitational force F between two bodies of mass m_1 and m_2 respectively is given by the equation
$$F(r) = G\frac{m_1 m_2}{r^2},$$
where r is the distance between the centers of mass of the bodies and G is the gravitational constant. Compute $\dfrac{dF}{dr}$, and explain the physical significance of its sign.