Quiz 7

Name: _____

1. Using the definition, find the slope of the tangent line to $f(x) = 3x^2$ at the basepoint $x = 7$. Using the definition:

$$\begin{aligned} f'(7) &= \lim_{h\to 0} \frac{3(7+h)^2 - 3(7^2)}{h} \\ &= \lim_{h\to 0} \frac{147 + 42h + 3h^2 - 147}{h} \\ &= \lim_{h\to 0} \frac{42h + 3h^2}{h} \\ &= \lim_{h\to 0} 42 + 3h \\ &= 42. \end{aligned}$$

2. Explain what the quantity $g'(10)$ means. This number is the slope of the tangent line to $g(x)$ at $x = 10$.