Zadatak 4.   Odredi jednadžbu tangente na graf funkcije $f(x) = 2x^2$ u točki $(2, 8)$.

Rješenje. $f(x) = 2x^2$, $y = kx + l$, $T(2, 8)$;

$$k = \lim_{\Delta x \to 0} \frac{1}{\Delta x}[f(2 + \Delta x) - f(2)] = \lim_{\Delta x \to 0} \frac{1}{\Delta x}[2(2 + \Delta x)^2 - 2 \cdot 2^2]$$

$$= \lim_{\Delta x \to 0} \frac{1}{\Delta x}[2(4 + 4\Delta x + \Delta x^2) - 8] = \lim_{\Delta x \to 0} \frac{1}{\Delta x}(8 + 8\Delta x + 2\Delta x^2 - 8)$$

$$= \lim_{\Delta x \to 0} \frac{2\Delta x^2 + 8\Delta x}{\Delta x} = \lim_{\Delta x \to 0}(2\Delta x + 8) = 8$$

$$y = kx + l$$

$$8 = 8 \cdot 2 + l \implies l = -8 \implies y = 8x - 8$$