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Math 1220

Problem 8 - P. 146

Find an equation of the tangent line to the curve
 $y = 2x^3 - 5x$ at point $(-1, 3)$

$$m = \lim_{x \rightarrow a} \frac{f(x) - f(a)}{x - a} \quad @ \quad (a, f(a))$$

$$a = -1$$

$$f(a) = 3$$

$$f(x) = 2x^3 - 5x$$

$$m = \lim_{x \rightarrow -1} \frac{2x^3 - 5x - 3}{x + 1}$$

$$m = \lim_{x \rightarrow -1} 2x^2 - 2x - 3$$

$$m = 2(-1)^2 - 2(-1) - 3$$

$$m = 2 + 2 - 3$$

$$m = 1$$

$$\begin{array}{r} 2x^2 - 2x - 3 \\ x+1 \overline{) 2x^3 + 0x^2 - 5x - 3} \\ \underline{2x^3 + 2x^2} \\ -2x^2 - 5x \\ \underline{-2x - 2x} \\ -3x - 3 \\ \underline{-3x - 3} \\ 0 \end{array}$$

$$y - y_1 = m(x - x_1)$$

$$y - 3 = 1(x + 1)$$

$$y = x + 4$$

