Nombre : Andrés Felipe Mariño Garzón

Curso: 1102

Código : 01

Area: Tecnologia e informatica

Libro : George B. Thomas, Joel R. Hass, Christoph

Página : 105

Ejercicio : 6

Link del documento :

https://docs.google.com/document/d/1RPfFYXs4_GeDb4XzilfugrR0PoqoVKiNnmv004eTFkI/edit?usp=sharing

In Exercises 5–10, find an equation for the tangent line to the curve at the given point. Then sketch the curve and tangent line together.

6. $y = (x-1)^2 + 1,\ (1,1)$

$f(x) = \lim_{h \to 0} \frac{f(x+h) - f(x)}{h}$

$f(x+h) = ((x+h)-1)^2 + 1$

$f(x+h) = (x+h)^2 - 1 + 1$

$f(x+h) = x^2 + 2 * h + h^2 - 1 + 1$

$f(x+h) = x^2 + 2 * h - 2x + h^2 + 2 - 2h$

$f(x) = \lim_{h \to 0} \frac{(x^2+2*h-2x+h^2+2-2h)-((x-1)^2+1)}{h}$

$= \frac{x^2+2*h-2x+h^2+2-2h-(x^2-2x+2)}{h}$

$= \frac{2*h+h^2-2h}{h}$

$= \frac{h(2x+h-2)}{h}$

$= \frac{h(2x+h-2)}{h}$

$= 2x - 2$

$f(x) = 2x - 2$

$f(1) = 2(1) - 2$

$f(1) = 0$

$m = 0$

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

$y + 1 = 0\,(x - 1)$