

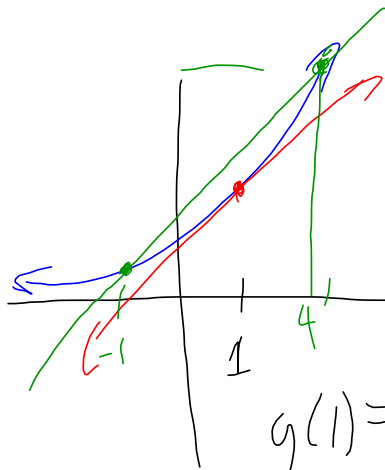
Remember that if $f(x) = Ce^{ax}$,
then $f'(x) = aCe^{ax}$.

① Find the equation for the tangent
line to ~~$g(x) = 0.25e^{2x}$~~ at $x = 1$.

Find m and b as decimals, rounded
to the hundredth's place.

$$g'(x) = 0.5e^{2x}$$

(2) Find the equation of the secant line from $x = -1$ to $x = 2$. Round as in #1.



$$m = g'(1)$$

$$m = 3.69$$

$$g(1) = 0.25e^{2(1)} = 1.85$$

$$y = mx + b$$

$$y = 3.69x + b$$

$$1.85 = 3.69(1) + b$$

$$-1.84 = b$$

$$y = 3.69x - 1.84$$

Thurs office 9:30-10:45

$$(u \pm v)' = u' \pm v'$$

$$(uv)' = u'v + v'u'$$

$$g(x) = Ce^{ax}$$

$$g'(x) = aCe^{ax}$$

$$y = \underbrace{5x^2}_u \underbrace{e^{3x}}_v$$

$$\begin{aligned}y' &= 5x^2(e^{3x})' + e^{3x}(5x^2)' \\ &= 5x^2(3e^{3x}) + e^{3x}(10x) \\ y' &= 15x^2e^{3x} + 10xe^{3x}\end{aligned}$$

$$g(x) = 0.25e^{2x}$$

$$g(2) = 13.65$$

$$g(-1) = 0.03$$

$$\frac{g(2) - g(-1)}{2 - (-1)} = \frac{13.65 - 0.03}{3} = 4.57$$

$$y = mx + b$$

$$y = 4.54x + b$$

$$13.65 = 4.54(2) + b$$

$$4.57 = b$$

$$y = 4.54x + 4.57$$