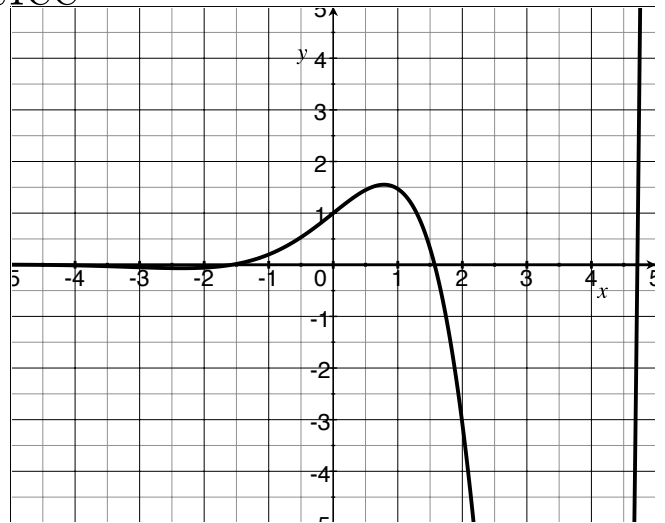# Related Rates & Linear approximations Practice

1. Let $f(x) = e^x \cos(x)$ graphed below:

   (a) Find the equation for the line tangent to f when $x = 0$.

   (b) Use the linearization of f to estimate $e^{0.3} \cos(0.3)$.

2. A spotlight on the ground shines on a wall 12m away. If a man 2 m tall walks form the spotlight towards the building at a sleet of 1.6m/s, how fast is the length of his shadow on the building decreasing when is he 4 m from the building?