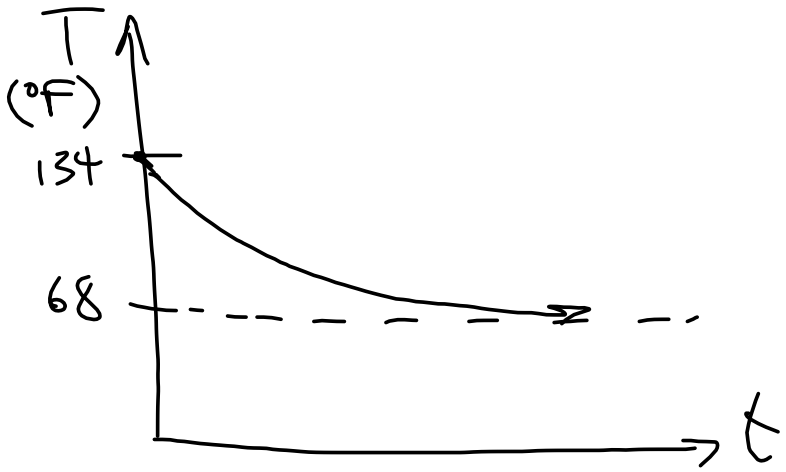
Work on these ⟶

① At $t = 5$ min, the temperature is decreasing at 2.3 °F/min.

②



③ a) $y = e^{3x}$, $y = 5e^{3x}$, $y = Ce^{3x}$

b) $x = e^{4t}$, $x = e^{-4t}$, $y = Ce^{4t}$

c) $y = \sin(4t)$ or $\cos(4t)$ or ~~$-e^{-4t}$~~

d) $y = \sin(\sqrt{5}x)$

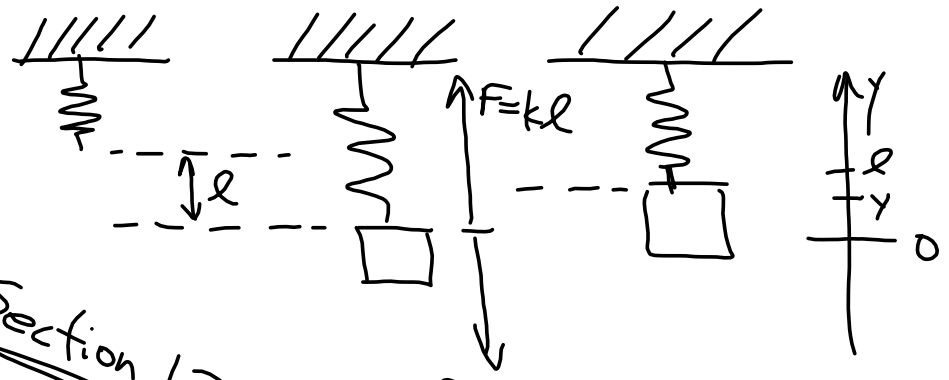
$y = \cos\sqrt{5}x$

$y = -e^{-4t}$

$y' = -e^{-4t}(-4t)'$

$= 4e^{-4t}$

$y'' = -16e^{-4t}$



Section 1.2

$F = -mg$

$F = kl - mg = 0$

$kl = mg$

$F = ma = m\frac{d^2y}{dt^2} = k(l-y) - mg$

$m\frac{d^2y}{dt^2} = \cancel{kl} - ky \cancel{- mg}$

$m\frac{d^2y}{dt^2} = -ky$

$\frac{d^2y}{dt^2} = -\frac{k}{m}y$

Suppose $\frac{k}{m} = 16$

$$\frac{d^2y}{dt^2} = -16y$$