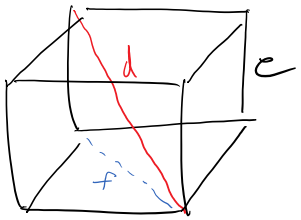
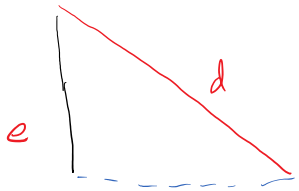
(4)



$\frac{de}{dt} = 2 \text{ cm/s}$



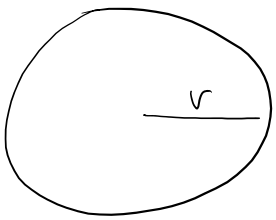
$f = e\sqrt{2}$

$e^2 + (e\sqrt{2})^2 = d^2$ $\quad e^2 + 2e^2 = d^2$

$d^2 = 3e^2$ $\quad \boxed{d = \sqrt{3} \cdot e}$

$\frac{d}{dt}(d = \sqrt{3}e) = \frac{d(d)}{dt} = \sqrt{3}\frac{de}{dt} = 2$

35



$$\frac{dr}{dt} = 2 \frac{m}{min}$$

$r = 25$

(a) $\frac{d}{dt}\left(A = \pi r^2\right)$

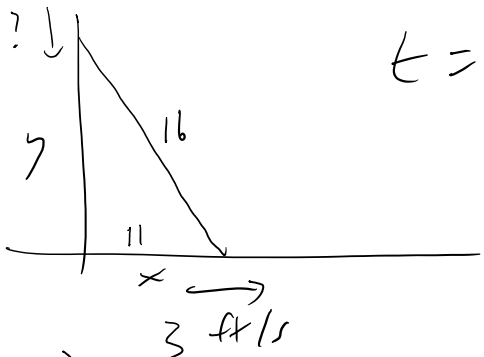
$$\frac{dA}{dt} = 2\pi r \frac{dr}{dt} = 2\pi (25)(2)$$

$$= 100\pi \ m^2/min$$

(b) $r = 6$

$$\frac{dA}{dt} = 2\pi(6) \cdot 2 = 24\pi$$

(19)



$t = 2$ bottom 5' from wall at $t = 0$

$y^2 + 121 = 256$

$y^2 = 135$

$y = \sqrt{135}$

$\frac{d}{dt}(x^2 + y^2 = 16^2)$

$2x\frac{dx}{dt} + 2y\frac{dy}{dt} = 0$

$11(3) + \sqrt{135}\frac{dy}{dt} = 0$ 12) 33

$\frac{dy}{dt} = \frac{-33}{\sqrt{135}}$ ft/min

$\frac{-33\sqrt{135}}{135}$

135)