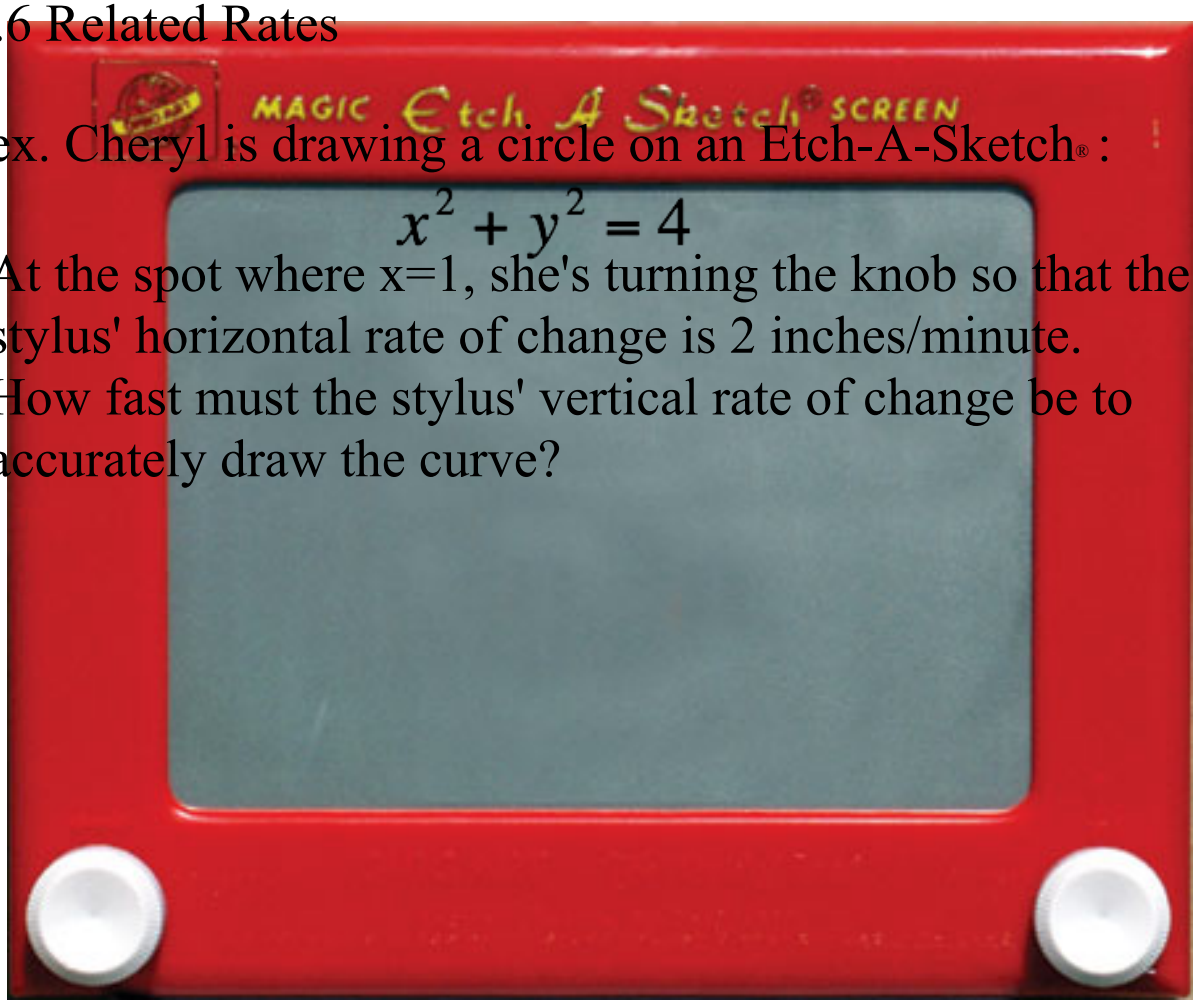
2.6 Related Rates

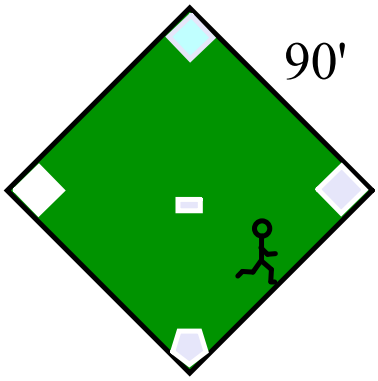


ex. Cheryl is drawing a circle on an Etch-A-Sketch® :

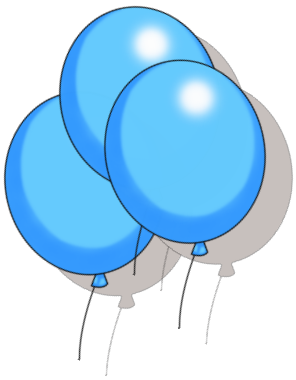
$$x^2 + y^2 = 4$$

At the spot where x=1, she's turning the knob so that the stylus' horizontal rate of change is 2 inches/minute. How fast must the stylus' vertical rate of change be to accurately draw the curve?

ex. A baseball diamond is a square 90 feet on each side. A runner starts from home plate towards first base at 20ft/sec. How fast is the runner's distance from second base changing when the runner is halfway to first base? Is this distance increasing or decreasing? Why?



ex. A spherical balloon is being inflated at a rate of 4 cubic inches per minute. Find the rate of change of the radius when the surface area is 64π square inches.



ex. Find the rate of change of the distance between the origin and a fly crawling on the graph of $y=\sin x$ if $dx/dt=2$ cm/sec when $x=\pi/4$.