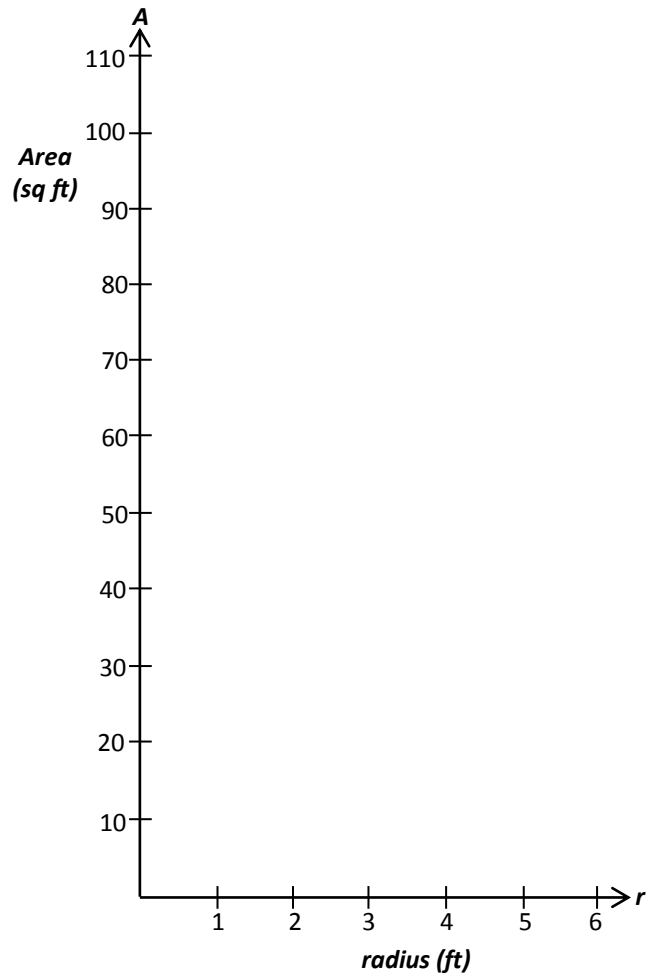**A PEBBLE IN A POND**

Patricia drops a pebble into a calm pond, causing ripples to form in concentric circles on the water's surface. The radius *r* of the outer ripple is increasing at a constant rate of **2** feet per second.

1. Write the equation that relates
    the radius *r* of a circle to its area *A*.

2. Complete the table, average rates, and graph.

t (sec)	*r* (ft)	*A* (sq ft) (exact & nearest tenth)	average rate (sq ft per sec)
	0		
	1		
	2		
	3		
	4		
	5		
	6		

3. At what rate is the total area *A* of the disturbed water changing with respect to time when the radius is at **1** ft, at **3** ft, and at **5** ft? *(exact & to nearest tenth)* Write units!

4. Find the rate of change of Area with respect to radius, $\dfrac{dA}{dr}$, at r=**1**, r=**3**, and r=**5**. *(exact & to nearest tenth)* Write units!