6.2 Related Rates

Calculus

Name:

Pythagorean $a^2 + b^2 = c^2$ $A = \frac{1}{2}bh$ $V = \frac{1}{3}\pi r^2 h$ Name:

CATTZ

Cylinder

Cylinder

Cube $V = \pi r^2 h$ $V = \pi r^2 h$

1. A conical tank with the vertex down is 10 feet across the top and 12 feet deep. If water is flowing into the tank at a rate of 10 cubic feet per minute, find the rate of change of the depth of the water when the water is 8 feet deep.

2. A baseball diamond has the shape of a square with sides 90 feet long. A player is running from first to second base at a speed of 30 feet per second. Find the rate at which the distance from home plate is changing when the player is 30 feet from second base.

3.	An airplane is flying at an altitude of 6 miles and passes directly over a radar antenna. When the
	plane is 10 miles out (horizontally), the radar detects that the distance between the plane and the
	radar is changing at a rate of 240 miles per hour. What is the speed of the plane?

4. A fish is reeled in at a rate of 1 foot per second from a point 15 feet above the water. At what rate is the angle between the line and the water changing when there are 25 feet of line out?

Answers to 6.2 CA #2

1. $\frac{9}{10\pi}$ ft/min	2. 16.641 feet/sec	3. 279.8857 mph	4. $\frac{3}{100}$ radians/sec
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