

ANSWERS TO CN PG: 67-71

- (1) (a) Volume (c) $V = (2 - 2x)(2 - 2x)x$ (d) CP: $x = 1/3$ (f) $V(0) = 0$, $V(1/3) = 0.59$, $V(1) = 0$
(g) $x = 1/3$ meters
- (2) $x = 48$ ft
- (3) length = 24.634 feet; width = 40.595 feet
- (4) $r = 0.5h$ is a minimum
- (5) Case I: $A = 11.459$ sq. in. Case II: $A = 9$ sq. in. Case III: $A = 5.041$ Sq. in.
Max area is formed by a circle only.
- (6) $r = p/(4 + \pi)$
- (7) $x = 255$ ft; $y = 255$ ft
- (8) $x = 36$ mph
- (9) (1.25, 0), (1.25, 22.9166666), (-1.25, 22.9166666), (-1.25, 0)

ANSWERS TO CN PG: 81(#6)

- (6) (a)(i) $dy/dt = -0.035$ m/sec
(ii) $dy/dt = -0.089$ m/sec
- (b) Let $dx/dt = k$; where k is a constant speed. Then $dy/dt = -k(x/y)$.
When the distance x increases, the distance y decreases. Hence the fraction x/y increases negatively. Therefore, the speed at which the top falls increases.