1) a) $d = \sqrt{x^4 - 13x^2 + 49}$

b) 7

c) $\sqrt{37}$

e) For what values of x is d smallest? -2.55 and 2.55

2) a) A(x) = .5*(-x³+9x)

b) 1.73

3) a) $A(x) = 2x\sqrt{4 - x^2}$

b) $P(x) = 4x + 2\sqrt{4 - x^2}$

c) 1.41

Case 1:a) _____$V(x) = x(18 - 2x)^2 = 4x^3 - 72x^2 + 324x$___

b)_____392 in³_____

c)_____3 in, 432in³_____

Case 2:a)

$\quad$ V=x²y (where x is the length of a side of the base and y is height)

$\quad$ 10=x²y => $\dfrac{10}{x^2} = y$

$\quad$ Material used = 2*x² + 4*xy => $m(x) = 2x^2 + \dfrac{40}{x}$

$\quad$ b) 42 in²

$\quad$ c) 2.15 in