

2.7 \rightarrow 13, 15

13.) Area of a triangle = $\frac{1}{2}bh$

base = x

height = y^3 ($y = x^3$)
height = x^3

Area = $\frac{1}{2}x \cdot x^3 = \boxed{\frac{1}{2}x^4}$

15.) Area of rectangle = $l \cdot w$

= $x \cdot y$

= $x \cdot (16 - x^2)$

$y = 16 - x^2$

a.) $\boxed{A = 16x - x^3}$

b.) Domain \rightarrow sub zero in for A and solve

$0 = 16x - x^3$

$0 = x(16 - x^2)$

$x = 0$; $16 - x^2 = 0$

$16 = x^2 \rightarrow \underline{\pm 4 = x}$

Domain: $\{x \mid 0 < x < 4\}$

* (-4) can't be in the domain b/c you can't have a negative side length

* zero + 4 can't be included b/c you wouldn't have a rectangle if length = 0 + width = 4 or vice versa.

c.) graph $A(x)$ on calc, then use 2ND TRACE \rightarrow MAX

to find x-coordinate of max.