Tuesday, October 29, 2019 8:46 AM

Warmup (Quiz Friday on 2.2 - 2.4)

① What is the maximum product of two numbers that add to give 22. What are the numbers?

① Equations & Variables ← what ever you want to max or min ← stuff ya don't know

$a, b \Rightarrow a+b=22$

Product $= a \cdot b = P$ ← max ⇒ vertex

$P = a \cdot b$

$P = a(22-a)$

$P = 22a - a^2$

$a+b=22$

$b = 22-a$

ax^2+bx+c

Vertex: $h = \frac{-b}{2a} = \frac{-(22)}{2(-1)} = \frac{-22}{-2} = 11$

↑ x value of vertex ⇒ a value for max

$a, b \quad a = 11 \Rightarrow b = 22-a$

$= 22-11$

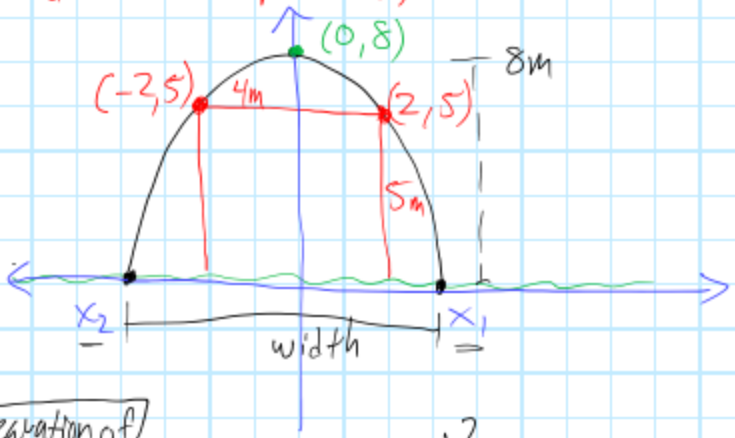
$= 11$

2 #'s are 11 and 11

max product $= 11 \cdot 11 = 121$

(2) A parabolic arch is 8 m tall. If a rectangular truck that is 5m tall and 4m wide must fit through the arch, how wide must the arch be at the bottom? (Answer exactly and to 1 decimal place)

(Hint: draw a picture!)



equation of arch

$$y = a(x-h)^2 + k$$

$h=0 \quad k=8$

$$y = ax^2 + 8$$

Point $(2,5)$

$$f(2) = 5 = a(2)^2 + 8$$

$$5 = 4a + 8 \Rightarrow -3 = 4a$$

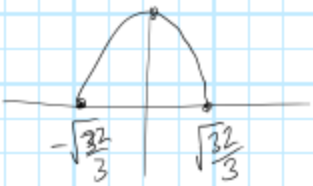
$$a = \frac{-3}{4}$$

$f(x) = -\frac{3}{4}x^2 + 8 = 0$ (x-ints)

$-\frac{4}{3} \cdot -\frac{3}{4}x^2 = -8 \cdot -\frac{4}{3}$

$x^2 = \frac{32}{3}$

$x = \pm\sqrt{\frac{32}{3}} = \pm 3.3$



width $= 2\left(\sqrt{\frac{32}{3}}\right) = 2\sqrt{\frac{32}{3}}$

$= 2(3.3) = 6.6$

Quiz 2.2 - 2.4 Friday

Completing the Square or it

Schedule

Tu NOV 5 – Collab & Give back Quiz

th NOV 7 - Assemblies / Review
Math Contest

wed NOV 13 – Test Chp 2 (Block flip)