

# Notes 11/4

- warm up with solving (no calc) & simplifying radicals

## Exponential Equations

- we can solve for the equation  $y = a(b)^x$  given two points ~ to solving  $y = mx + b$  given two points.
- instead of slope we first find the rule/base (b)
- then use a pt & b to find a.

**ex** find the equation for the exponential line through  $(3, 750)$  &  $(7, 468,750)$

$$\text{equation 1: } 750 = a(b)^3$$

$$\text{equation 2: } 468750 = a(b)^7$$

$$\text{put equation 2} \\ \text{equation 1} : \frac{468750}{750} = \frac{a(b)^7}{a(b)^3}$$

$$625 = \frac{b^7}{b^3}$$

$$(625)^{1/4} = (b^4)^{1/4}$$

$$5 = b$$

(Solve for b)

$$750 = a(5)^3 \quad y = a(5)^x \text{ at } (3, 750)$$

$$\frac{750}{125} = \frac{a(125)}{125}$$

$$6 = a$$

(Solve for a)

$$y = 6(5)^x$$

**ex 2** •  $(4, 121.50)$  &  $(8, 9841.50)$

$$\frac{9841.50}{121.50} = \frac{a(b)^8}{a(b)^4}$$

$$(81)^{1/4} = ((b^4)^{1/4})$$

$$3 = b$$

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

$$121.50 = a(3)^4$$

$$\frac{121.50}{81} = \frac{a(81)}{81}$$

$$1.5 = a$$

$$y = 1.5(3)^x$$