



November 30

SWBAT:
Rewrite log expressions

Rewrite in
logarithmic form

$$2^5 = 32$$

$$\log_2(32) = 5$$

$$e^x = 4$$

$$\log_e(4) = x$$

$$\ln(4) = x$$

Evaluate each
expression

$$\log_2(16)$$

$$\log_2(16) = y$$

$$2^y = 16$$

$$2^y = 2^4 \rightarrow y = 4$$

$$\log_8(32)$$

$$\log_8(32) = y$$

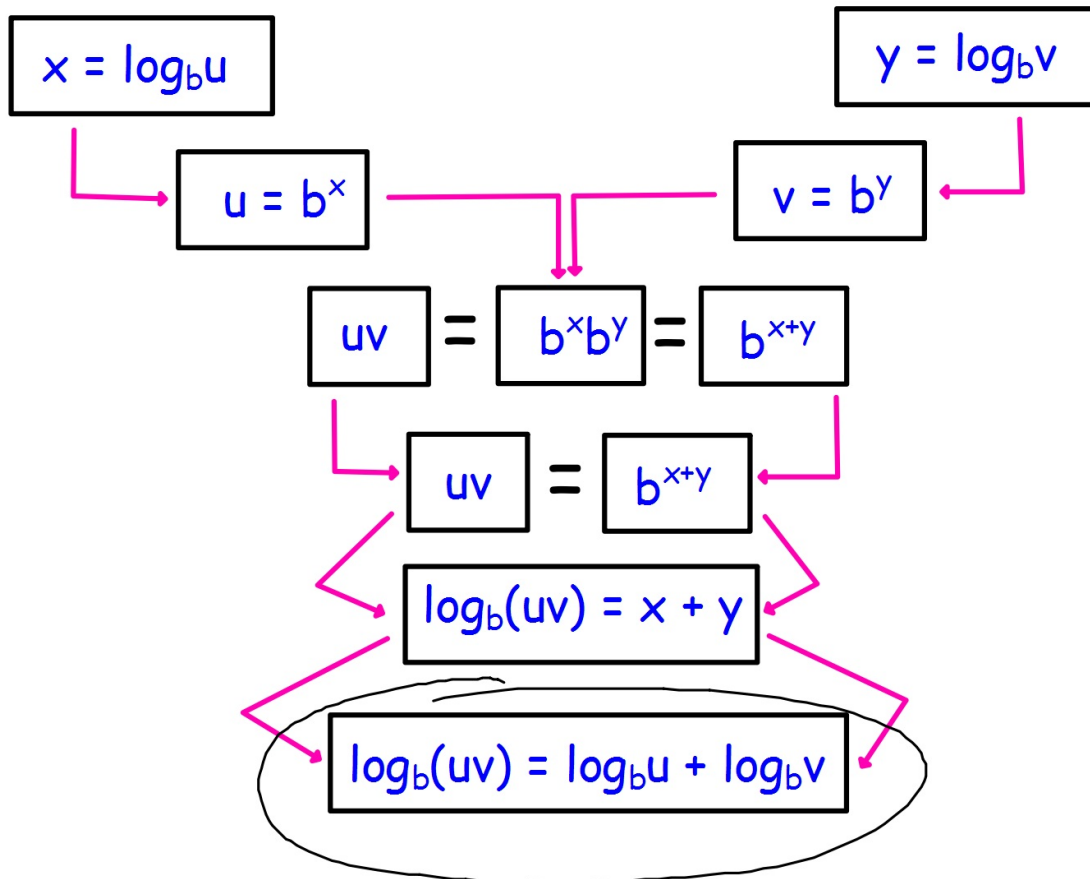
$$8^y = 32$$

$$(2^3)^y = 2^5$$

$$2^{3y} = 2^5$$

$$\frac{3}{3}y = \frac{5}{3}$$

$$y = \frac{5}{3}$$



Log Properties

$$\ln(x \cdot y) = \ln(x) + \ln(y)$$

$$\ln\left(\frac{x}{y}\right) = \ln(x) - \ln(y)$$

$$\ln(a^x) = x \cdot \ln(a)$$

Expand
 $\ln\left(\frac{x^4}{y}\right)$

$$= \ln(x^4) - \ln(y)$$

$$= 4 \cdot \ln(x) - \ln(y)$$

$$\ln\left(\left[\frac{(x-2)^5}{3y}\right]\right)$$

$$= 5 \cdot \ln\left(\frac{x-2}{3y}\right)$$

$$= 5 \cdot (\ln(x-2) - \ln(3y))$$

$$= 5 [\ln(x-2) - (\ln(3) + \ln(y))]$$

$$= 5 \ln(x-2) - 5(\ln(3) + \ln(y))$$