

$$\log_a x = y$$

$$a^y = x$$

Unit 2

Exponents and Logarithms


Exponenti

$y=2^x$

$y=3^x$

$y=4^x$

Asymptote



4.9 Solving Exponential Equations with Non-Like Bases

Like Bases:

$$4^x = 64$$

$$4^x = 4^3$$

x = 3

$$2^{2x} = 2^6$$

$$\frac{2x}{2} = \frac{6}{2}$$

x = 3

Non-Like Bases:

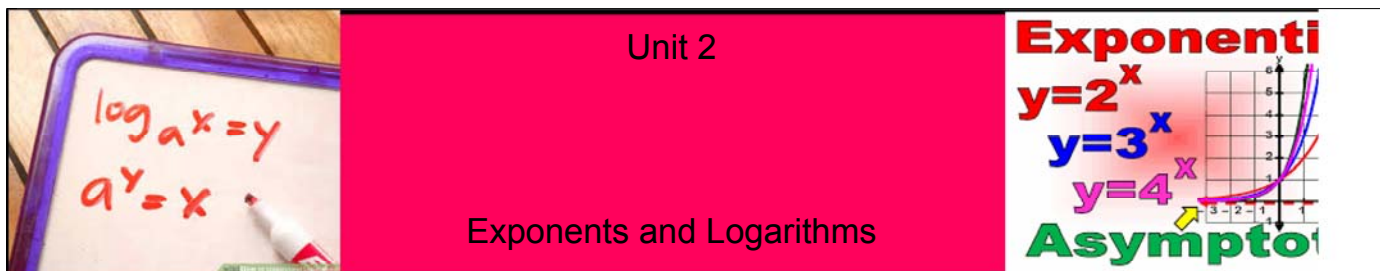
$$3^x = 5$$

$\log_3 5 = x$

exact value

$1.416 = x$

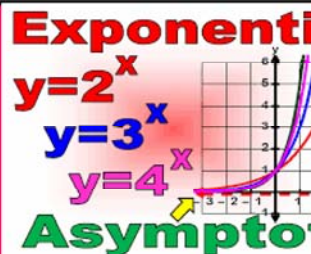
nearest hundredth



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Ex.) Solve the following exponential equations using logarithms.

a) $15 \leftarrow 3^x$


$$\log_3 15 = x$$

$$x = 2.46$$

b) $10^x \rightarrow 27$

$$\log_{10} 27 = x$$

$$x = 1.43$$

c) $\cancel{3}(5^x) = \frac{27}{3}$ 

$$5^x = 9$$

$$\log_5 9 = x$$

$$x = 1.37$$

