

Algebra 2 Thurs. 4-11-13 Class Notes

① $\log_N 144 = 2$

$$N^2 = 144$$

$N = 12$

② $\log_2 X = 5$

$2^5 = 32$

③ (A) $\log_5 25 = 2$ Greatest

(B) $\log_{25} 25 = 1$

(C) $\log_{25} 5 = 25^{\frac{1}{2}}$

(D) $\log_{625} 25 = 625^x = 25 \quad x = \frac{1}{4}$

(E) $\log_{125} 5 = 125^x = 5 \quad x = \frac{1}{3}$

See LAST page for
logarithm rules

④ $\log_m N = a, \log_m P = b$

$\log_m (NP)^3 = ?$

$[\log_m N^3 + \log_m P^3] = \log_m (N^3 P^3) =$

$3 [a + b]$

~~3ab~~ $\Rightarrow (NP)^3$

or $3a + 3b$

⑤ $\log_3 X + \log_3 (9X) = 4$

$\log_3 (9X^2) = 4$

$3^4 = 9X^2$

$\frac{81}{9} = \frac{9X^2}{9}$

$9 = X^2$

$\pm 3 = X$

BUT -3 is undef.
 $\boxed{3}$

$$\textcircled{6} \quad \textcircled{\log_4 16} - \log_6 36 = \log_8 X$$

$$2 - 2 = \log_8 X$$

$$8^0 = X$$

$$1 = X$$

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Summary - 3 Log Rules

$$\boxed{AR} \quad \log_b M + \log_b N = \log_b (MN)$$

$$\boxed{SR} \quad \log_b M - \log_b N = \log_b \left(\frac{M}{N}\right)$$

$$\boxed{MR} \quad N \log_b M = \log_b (M^N)$$
