

LOG Form: $\text{LOG}_b Q = P$

EXP Form: $b^P = Q$ ← base

#2 $5^3 = 125$
 $\text{LOG}_5 125 = 3$

LOG Form: $\text{LOG}_b Q = P$

#3 $\sqrt[4]{16} = 2$

$16^{\frac{1}{4}} = 2$
 $\text{LOG}_{16} 2 = \frac{1}{4}$

#1 $5 = \text{LOG}_3 X$
 $3^5 = X$

EXP Form: $b^P = Q$
 $3^5 = X$

$\text{LOG}_5 125 = 3$

LOG Form: $\text{LOG}_b Q = P$

$\text{LOG}_{16} 2 = \frac{1}{4}$

log ln
 LN

PROPERTY

$\text{LOG}_b b^P = P$

#4 $\text{LOG}_5 25$
 $\text{LOG}_5 5^2$
 2

#5 $\text{LOG}_2 \frac{1}{8}$
 $\text{LOG}_2 2^{-3}$
 -3

#6 $\text{LOG}_4 \sqrt{4}$
 $\text{LOG}_4 4^{\frac{1}{2}}$
 $\frac{1}{2}$

#7 $\text{LOG}_9 3$
 $\text{LOG}_9 9^{\frac{1}{2}}$
 $\frac{1}{2}$
 $\sqrt{9} = 3$
 $9^{\frac{1}{2}} = 3$

#8 $\text{LOG}_8 1$
 $\text{LOG}_8 8^0$
 0

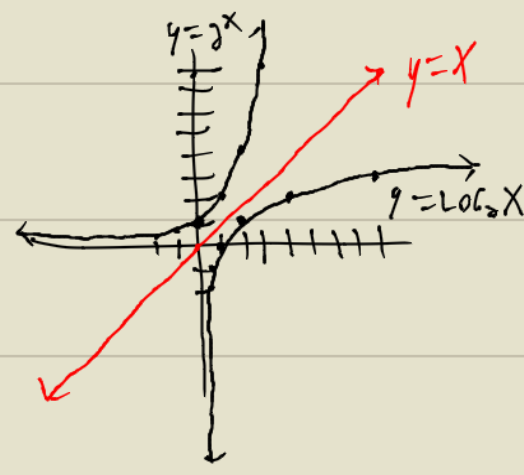
PROPERTY

$b^{\text{LOG}_b Q} = Q$

#9 $3^{\text{LOG}_3 17}$
 17

$y = 2^x$

| X | y |
|----|--|
| 3 | $2^3 = 8$ |
| 2 | $2^2 = 4$ |
| 1 | $2^1 = 2$ |
| 0 | $2^0 = 1$ |
| -1 | $2^{-1} = \frac{1}{2}$ |
| -2 | $2^{-2} = \frac{1}{2^2} = \frac{1}{4}$ |
| -3 | $2^{-3} = \frac{1}{2^3} = \frac{1}{8}$ |



$y = \text{LOG}_2 X$

| X | y |
|---------------|----|
| 8 | 3 |
| 4 | 2 |
| 2 | 1 |
| 1 | 0 |
| $\frac{1}{2}$ | -1 |
| $\frac{1}{4}$ | -2 |
| $\frac{1}{8}$ | -3 |

CHANGE OF BASE
 $y = \frac{\text{LOG}_X X}{\text{LOG}_2 X}$
 OR
 $y = \frac{\text{LN } X}{\text{LN } 2}$