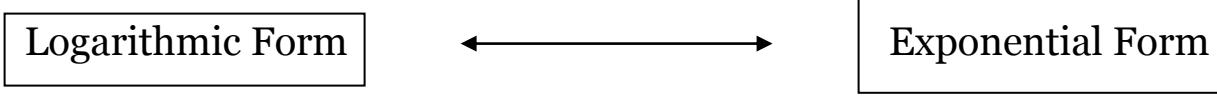


Key

Section 9.2 Notes Day 2 ☺



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|--|--|
| 1. $\log_5 t = k$
2. $\log_r g = w$
3. $\log_m 7 = h$
4. $\log_8 d = p$ | 1. $5^k = t$
2. $r^w = g$
3. $m^h = 7$
4. $8^p = d$ |
|--|--|

Without a calculator, find the logarithm, x.

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|--|---|---|
| 5. $\log_3 \frac{1}{27}$
$(3^x = \frac{1}{27})$
<div style="border: 1px solid red; padding: 5px; width: fit-content; margin: 5px auto;">-3</div> | 6. $\log_{\frac{1}{5}} \frac{1}{625}$
$(\frac{1}{5})^x = \frac{1}{625}$
<div style="border: 1px solid red; padding: 5px; width: fit-content; margin: 5px auto;">4</div> | 7. $\log_4 64$
$(4^x = 64)$
<div style="border: 1px solid red; padding: 5px; width: fit-content; margin: 5px auto;">3</div> |
|--|---|---|

Without a calculator, find the argument, x.

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|--|---|--|
| 8. $\log_4 x = 3$
$4^3 = x$
<div style="border: 1px solid red; padding: 5px; width: fit-content; margin: 5px auto;">64 = x</div> | 9. $\log x = -4$
$10^{-4} = x$
$\frac{1}{10^4} = x$
<div style="border: 1px solid red; padding: 5px; width: fit-content; margin: 5px auto;">$\frac{1}{10000} = x$</div> | 10. $\log_{\frac{3}{4}} x = -2$
$(\frac{3}{4})^{-2} = x$
$\frac{3^{-2}}{4^{-2}} = x$
$\frac{4^2}{3^2} = x$
<div style="border: 1px solid red; padding: 5px; width: fit-content; margin: 5px auto;">$x = \frac{16}{9}$</div> |
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Without a calculator, find the base, x.

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| 11. $\log_x 36 = 2$
$x^2 = 36$
<div style="border: 1px solid red; padding: 5px; width: fit-content; margin: 5px auto;">x = 6</div> | 12. $\log_x \frac{1}{9} = \frac{1}{2}$
$(x^{1/2})^2 = (\frac{1}{9})^2$
<div style="border: 1px solid red; padding: 5px; width: fit-content; margin: 5px auto;">$x = \frac{1}{81}$</div> | 13. $\log_x 64 = -\frac{2}{3}$
$(x^{-2/3})^3 = (64)^{-3/2}$
$x = (8^2)^{-3/2}$
$x = 8^{-3}$
<div style="border: 1px solid red; padding: 5px; width: fit-content; margin: 5px auto;">$x = \frac{1}{512}$</div> |
|--|--|--|

Solve:

14. $\log(3x+2) = \log(x^2-8)$
 $3x+2 = x^2-8$
 $0 = x^2-3x-10$
 $0 = (x-5)(x+2)$

x = 5, -2

 * the argument can never be negative