Log Laws (8.3) p400 day 3

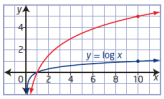
Quiz 11

Log Laws (8.3) p400 day 3

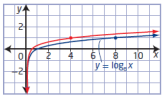
hw: p390#6abc, 9, 14

6. In each, the red graph is a stretch of the blue graph. Write the equation of each red graph

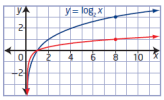
a)



b)



c)



9. Describe how the graph of each logarithm function could be obtained from the graph of $y = \log_3 x$.

a) $y = 5\log_3(-4x + 12) - 2$

b) $y = -\frac{1}{4}\log_3(6 - x) + 1$

14. According to the Ehrent the average measuremer h, in centimetres, and m kilograms, of children b of 5 and 13 are related b $\log m = 0.008h + 0.4$.

a) Predict the height of with a mass of 60 kg, centimetre.

b) Predict the mass of a with a height of 150 kilogram.

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ex1: There was an earthquake recently in Alaska that measured 7.0 on the Richter scale. Find the magnitude of a quake that was half as intense.

$\frac{10^7}{2}$

$= \frac{10\,000\,000}{2}$

$= 5\,000\,000$

$\log 5\,000\,000$

$= 6.7$

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ex2: Use logs to multiply 52 x 89.

$\log 52 = 1.716$

$\log 89 = 1.949$

add 3.665

$10^{3.665} = 4628$

$2^5 \cdot 2^3 =$

note: $\log 52 + \log 89 = \log(52 \cdot 89)$

this was useful before calculators when they had log tables now it helps us to discover some log laws

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ex3: Divide 356 ÷ 19

$\log 356 = 2.551$

$\log 19 = 1.279$

Subtract 1.272

$10^{1.272} = 18.7$

so,

$$\log A + \log B = \log AB$$

$$\log A - \log B = \log\left(\frac{A}{B}\right)$$

Log Laws (8.3) p400 day 3

ex4: Evaluate

$\log 25 + \log 4$

$= \log(25 \cdot 4)$

$= \log(100)$

$= 2$

$\log_2 256 - \log_2 8$

$= \log_2\left(\frac{256}{8}\right)$

$= \log_2 32$

$= 5$

Log Laws (8.3) p400 day 3

ex5: Simplify and evaluate

$\log_6 8 + \log_6 9 - \log_6 2$

$= \log_6\left(\frac{8 \cdot 9}{2}\right)$

$= \log_6 36$

$= 2$

$\log_5 1000 - \log_5 4 - \log_5 2$

$= \log_5\left(\frac{1000}{4 \cdot 2}\right)$

$= \log_5 125$

$= 3$

2a

8ab

Log Laws (8.3) p400 day 3

hw: p400#7abc, 12a, 14