

Basic properties of logarithms

Fill in the missing values to make the equations true.

(a) $\log_5 11 - \log_5 9 = \log_5 \square$

ladder rule P3
Combined logs. P2

(b) $\log_2 \square + \log_2 7 = \log_2 35$

$$\log_5 11 + \log_5 9^{-1} =$$

(c) $2 \log_6 3 = \log_6 \square$

$$\log_5 11 \cdot 9^{-1} = \log_5 \frac{11}{9}$$

$$x \cdot 7 = 35$$

$$x = 5$$

(a) $\log_2 5 + \log_2 11 = \log_2 \square$

(b) $\log_5 \square - \log_5 9 = \log_5 \frac{11}{9}$

(c) $-4 \log_7 2 = \log_7 \square^{-4}$

Write the expression as a single logarithm.

$$2\log_c y + 2(\log_c x - 3\log_c z)$$

$$\log_c y^2 + 2\left(\log_c \frac{x}{z^3}\right)$$

$$\log_c y^2 \left(\frac{x}{z^3}\right)^2$$

$$\log_c \left(\frac{x^2 y^2}{z^6}\right)$$

Use the properties of logarithms to expand $\log \frac{z^7}{x}$.

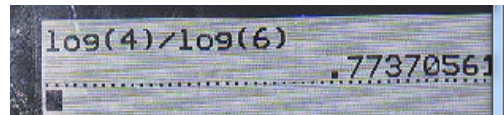
$$\log z^7 - \log x$$

$$7 \log z - \log x$$

Change of base for logarithms: Problem type 1

Use the change of base formula to compute $\log_6 4$.

Round your answer to the nearest thousandth.



Solve for x .

$$\log_6 x = 2 \quad 6^2 = x$$

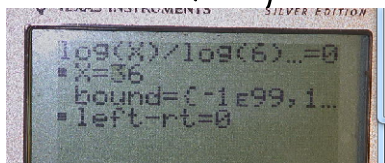
Simplify your answer as much as possible.

get rid of log.....use prop 1

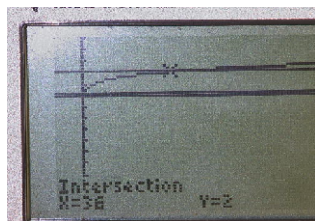
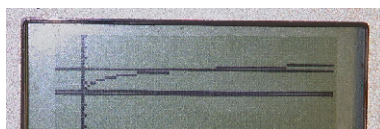
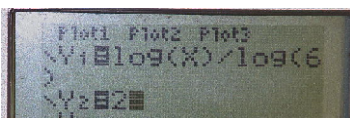
$$6^{\boxed{2}} = \boxed{x}$$

1. Solver

$$0 = \log(X) / \log(6) - 2$$



2. Intersection



$$\log_6 X = 2$$

Finding simple interest without a calculator

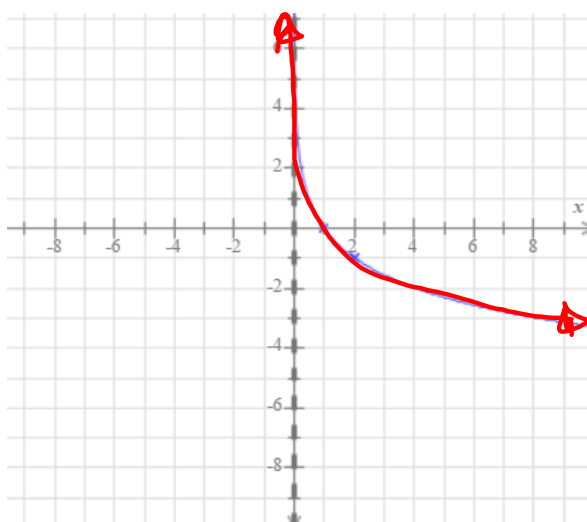
Eric deposits \$200 into an account that pays simple interest at a rate of 2% per year. How much interest will he be paid in the first 2 years?

$$.02 \times 200 = 4$$

$$4 \times 2 = 8$$

$$I = PRT$$

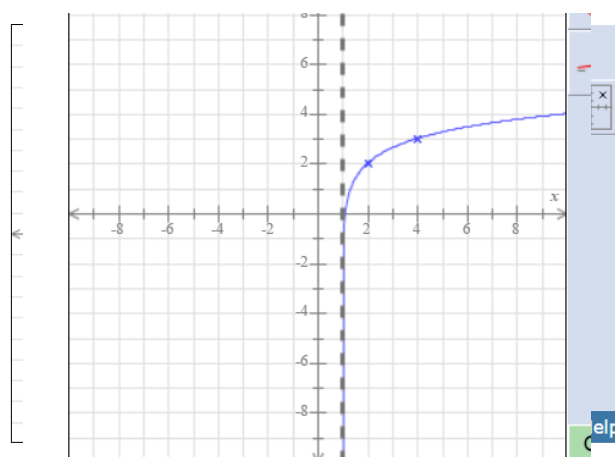
$$= (200)(.02)(2)$$



Domain: $(0, \infty)$

Range: $(-\infty, \infty)$

Graph the function $g(x) = 2 + \log_3(x - 1)$ and give its domain and range using interval notation.



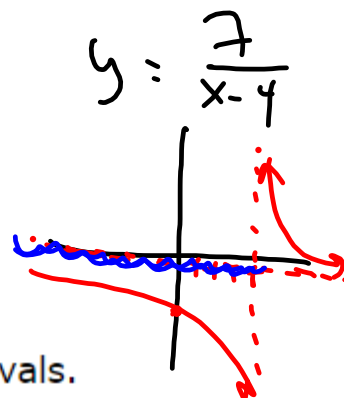
Domain: $(1, \infty)$

Range: $(-\infty, \infty)$

Quiz 6 - Question #8;
Domain of a logarithmic function: Advanced

Find the domain of the function.

$$f(x) = \ln\left(\frac{7}{x-4}\right) \quad \frac{7}{x-4} > 0$$



Write your answer as an interval or union of intervals.

1. Can't divide by 0
 2. Can't syr. Rest of Neg
 3. Can't log of 0 or Neg
- LAND
(4, ∞)

Quiz 6 - Question #8;
Domain of a logarithmic function: Advanced

Find the domain of the function.

$$f(x) = \log_3(1 - x^2)$$

$$1 - x^2 > 0$$

Write your answer as an interval or union of intervals.

$$x: (-1, 1)$$



$$\frac{1}{x+2} \geq \frac{3}{x-1}$$

$$0 \geq \frac{3}{x-1} - \frac{1}{x+2}$$

$$\frac{3(x+2) - (x-1)}{(x-1)(x+2)} \quad \left(-\frac{7}{2}, -\frac{7}{2}\right)$$

$$\frac{3x+6-x+1}{(x-1)(x+2)}$$

$$\frac{2x+7}{(x-1)(x+2)}$$

