Group:

- _____

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Since the logarithms and exponential functions are inverses we have:

$$b^{\log_b x} = x \qquad\qquad \log_b(b^x) = x,$$

for $b > 0$ and $b \neq 1$.

1. Evaluate the following logarithms

   (a) $\log(1000)$

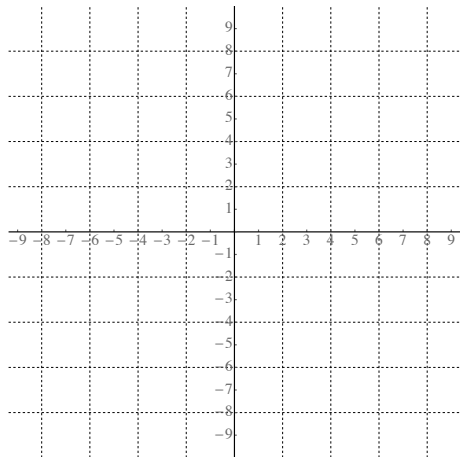   (b) $\log_4\left(\frac{1}{2}\right)$

   (c) $\ln(e^7)$

   (d) $7^{\log_7(13)}$

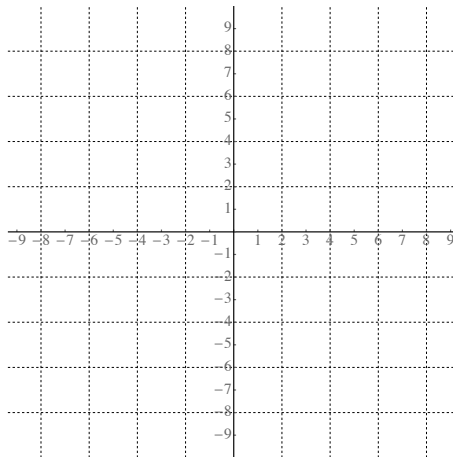2. Graph using transformations $f(x) = 5 \log_7(2x - 1)$
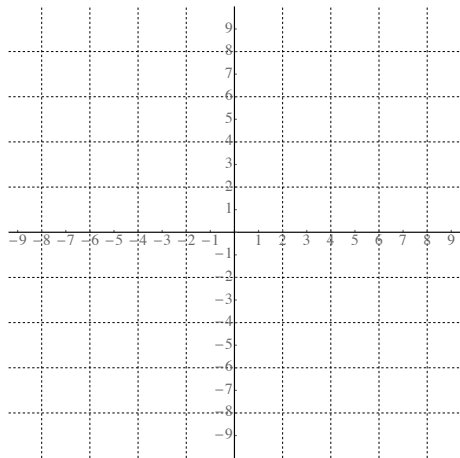
(i) parent function:

y=
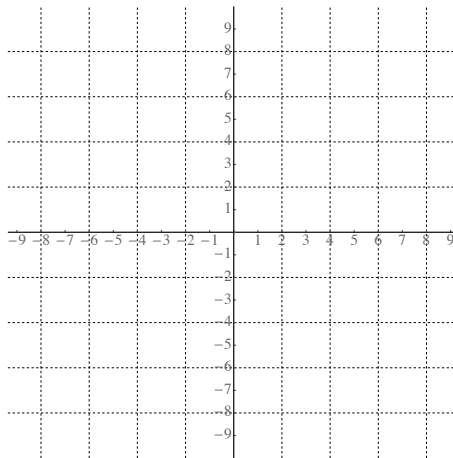
(ii) transformation:

y=

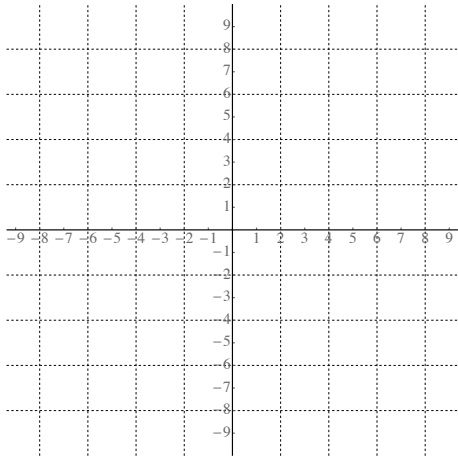(iii) transformation:

y=

(iv) transformation:

y=

What are the asymptotes of this function?

3. Find the domain of $f(x) = 5 \log_7(2x - 1)$. [Could we do this without the graph?]

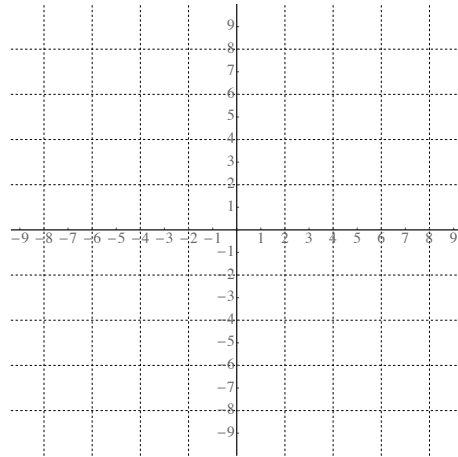4. Graph using transformations $f(x) = 3^{\frac{x}{2}-1} - 2$
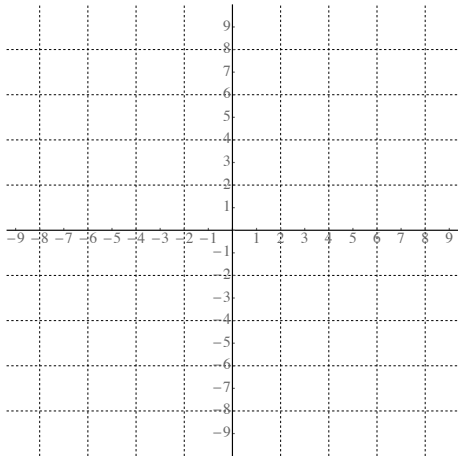
(i) parent function:

y=

(ii) transformation:

y=

(iii) transformation:

y=

5. Find the domain of $f(x) = \log(3x + 12)$.

6. Find the domain of $f(x) = \ln\left(\frac{x-2}{x^2+5x}\right)$.