

1. Solve each exponential equation algebraically. Leave answers in exact form.

a)  $4^{2x} = \frac{1}{256}$

b)  $5^{x-1} = \left(\frac{1}{25}\right)^{x-4}$

c)  $16^{2x-3} = 32^{x+3}$

d)  $\left(\frac{1}{9}\right)^{2x} = \left(\frac{1}{27}\right)^{x+1}$

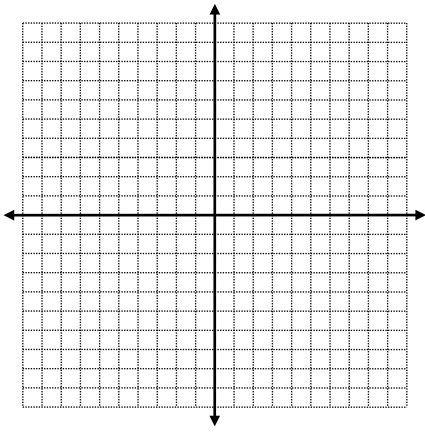
e)  $\left(\frac{1}{8}\right)^{2x+1} = \sqrt[4]{16}^{x-3}$

f)  $125\sqrt{5} = 25^{x-2}$

2. Sketch the graph of each function below. Clearly label at least 3 points and any asymptotes.

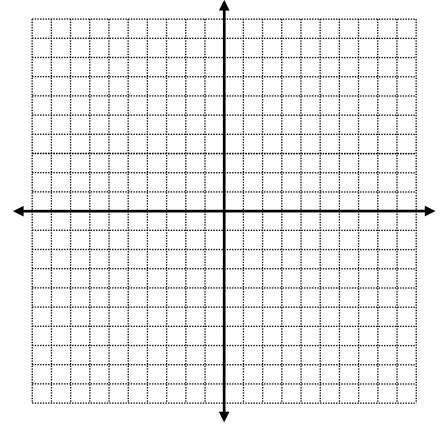
a)  $y = 3^x$

x-int:  
y-int:  
asyp:  
domain:  
range:  
increasing  
or  
decreasing?



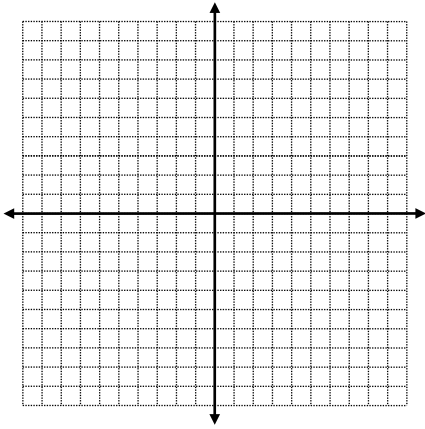
b)  $y = 3^{2(x-1)} - 3$

x-int:  
y-int:  
asyp:  
domain:  
range:  
increasing  
or  
decreasing?



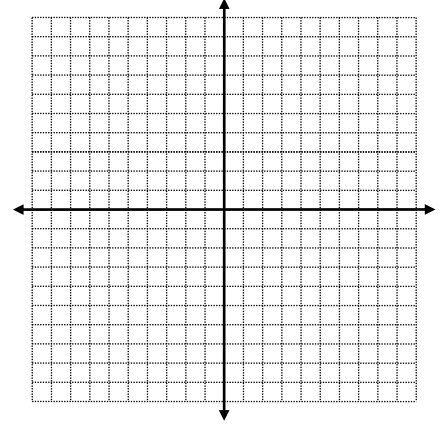
c)  $y = \left(\frac{1}{3}\right)^x$

x-int:  
y-int:  
asyp:  
domain:  
range:  
increasing  
or  
decreasing?



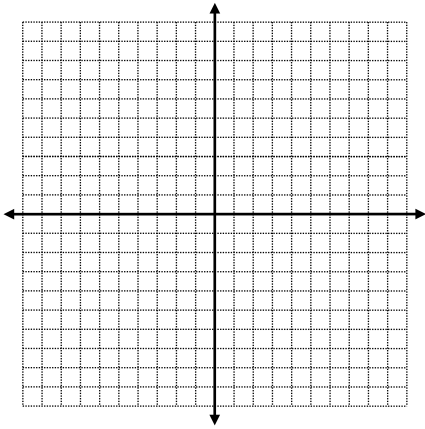
d)  $y = 2\left(\frac{1}{3}\right)^{x+2}$

x-int:  
y-int:  
asyp:  
domain:  
range:  
increasing  
or  
decreasing?



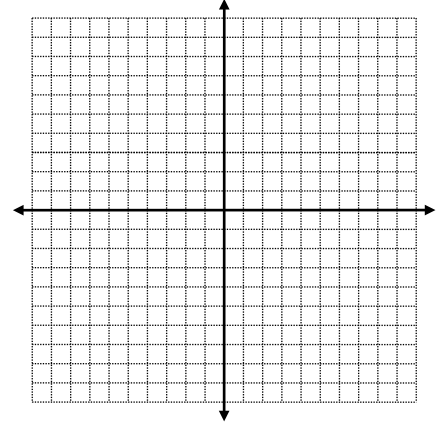
e)  $y = 2^x$

x-int:  
y-int:  
asyp:  
domain:  
range:  
increasing  
or  
decreasing?



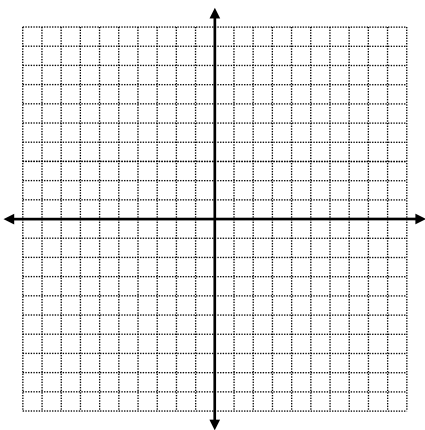
f)  $y = 2^{-(x-2)} + 1$

x-int:  
y-int:  
asyp:  
domain:  
range:  
increasing  
or  
decreasing?



g)  $y = \left(\frac{1}{2}\right)^x$

x-int:  
y-int:  
asyp:  
domain:  
range:  
increasing  
or  
decreasing?



h)  $y = -\left(\frac{1}{2}\right)^{\frac{1}{2}x} + 2$

x-int:  
y-int:  
asyp:  
domain:  
range:  
increasing  
or  
decreasing?

