1. Let $a > 0$, $b > 0$ and x and y are any real numbers. Fill out the table of **Laws of Exponents** below:

1.	$b^{x+y} =$	3.	$(b^x)^y =$
2.	$b^{x-y} =$	4.	$(ab)^x =$

2. Use the the table above to rewrite and simplify the expression. Write down the number of the rule that you are using to the side of your work.

   a. $\sqrt[3]{x^{-2}}$

   b. $b^{(n-1)}(3b^2)^n$

   c. $\dfrac{6x^2y}{\sqrt{4xy^3}}$

3. Are the following statements true or false? If the statement is false, provide a counterexample (using specific numbers) showing it is false.
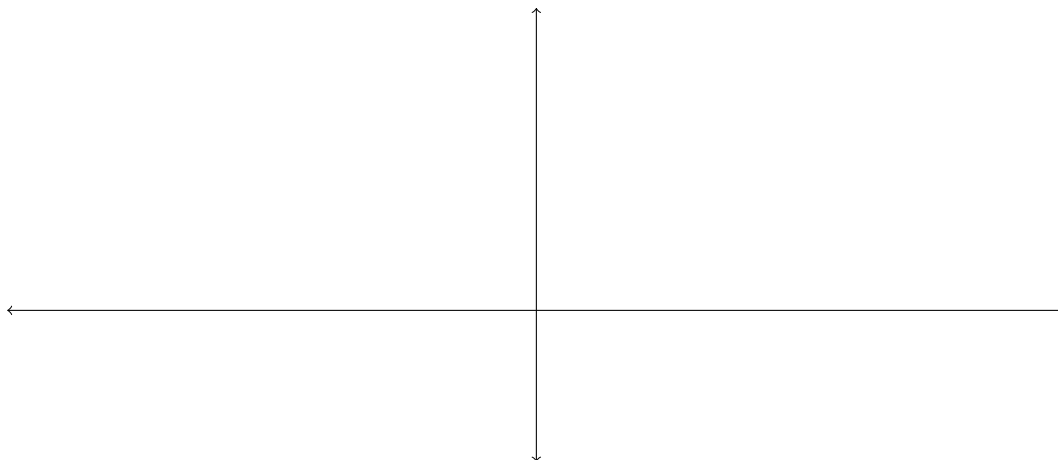
   a. $(a+b)^2 = a^2 + b^2$

   b. $\sqrt{x^2 + 4} = x + 2$

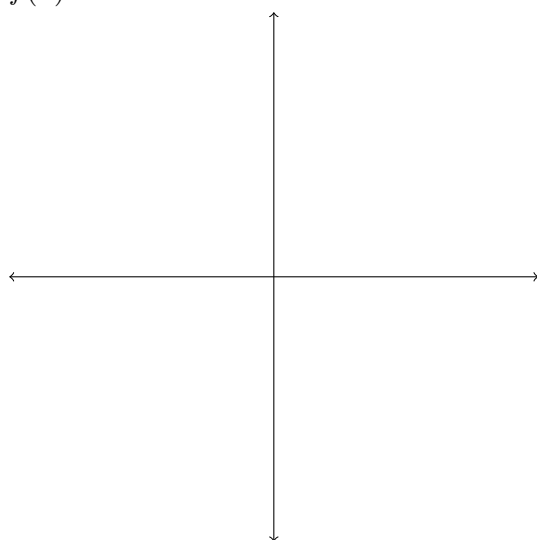   c. $\dfrac{a+b}{c+d} = \dfrac{a}{c} + \dfrac{b}{d}$

   d. $\dfrac{a+b}{c} = \dfrac{a}{c} + \dfrac{b}{c}$

4. On the axes below, graph $f(x) = 2^x$, $g(x) = 4^x$, $k(x) = \left(\frac{1}{2}\right)^x$ and $s(x) = \left(\frac{1}{4}\right)^x$. Label any x- and y-intercepts.
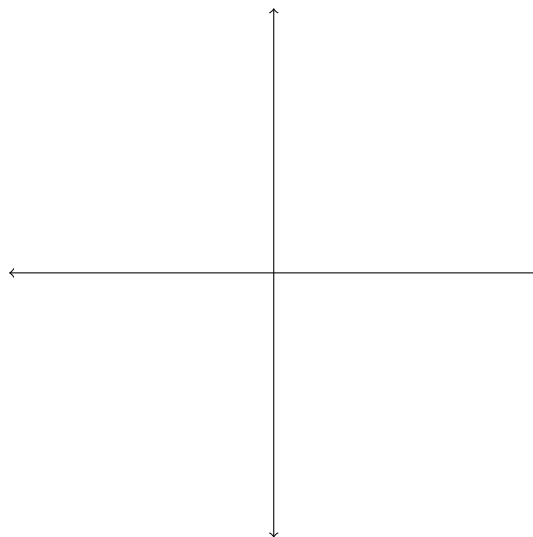
5. What is the domain and range of $f(x) = 4^x$? Horizontal and vertical asymptotes?

6. Sketch the graph of each function below, using what you know about transformations of functions. Determine its domain and range, and label any x- and y-intercepts (use exact numbers) and horizontal or vertical asymptotes.
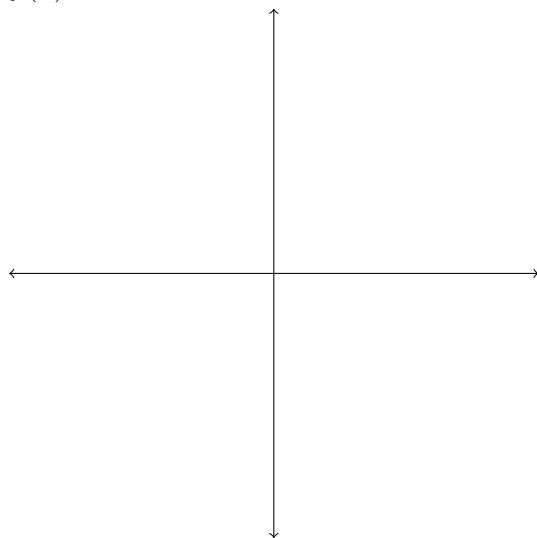
(c) $f(x) = 2e^{x-2}$

(a) $f(x) = e^x$

(b) $f(x) = e^{x-2}$

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