1. Next to each function, write “yes” if it is an exponential function. If the answer is “no”, write an explanation why not.

   a) \( y = -0.5 \left( -\frac{3}{5} \right)^x \)  
   b) \( y = 6(0.24)^x \)  
   c) \( y = 7x^2 \)  
   d) \( y = -0.2(3)^{-x} \)  

   e) \( y = 4x^8 \)  
   f) \( y = 4(-3)^x \)  
   g) \( y = -3(4)^x \)  
   h) \( y = 3(4)^{-x} \)  

Sketch the graph of each exponential function by doing the following: Sketch the asymptote, label at least three distinct coordinate points on each graph, and write the domain and range of each function.

2. \( y = 2(4)^x \)  
   Domain: \( (-\infty, \infty) \)  
   Range: \( (0, \infty) \)  

3. \( y = -2^x \)  
   Domain: \( (-\infty, \infty) \)  
   Range: \( (-\infty, 0) \)  

4. \( y = -3(3)^{x-2} + 1 \)  
   Domain: \( (-\infty, \infty) \)  
   Range: \( (-\infty, 2) \)  

5. \( y = (2)^{x+1} - 2 \)  
   Domain: \( (-\infty, \infty) \)  
   Range: \( (-\infty, \infty) \)
1. a) No. The base $b$, must be a positive number other than one.

   b) Yes.

   c) No. The variable must be in the exponent, not the base.

   d) Yes.

   e) No. The variable must be in the exponent, not the base.

   f) No. The base $b$, must be a positive number other than one.

   g) Yes.

   h) Yes.

2. $y = 2(4)^x$

   Domain: All real numbers.
   Range: $y > 0$

3. $y = -2^x$

   Domain: All real numbers.
   Range: $y < 0$

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

   Domain: All real numbers.
   Range: $y < 1$

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

   Domain: All real numbers.
   Range: $y > -2$