

Exponential Functions Day 2

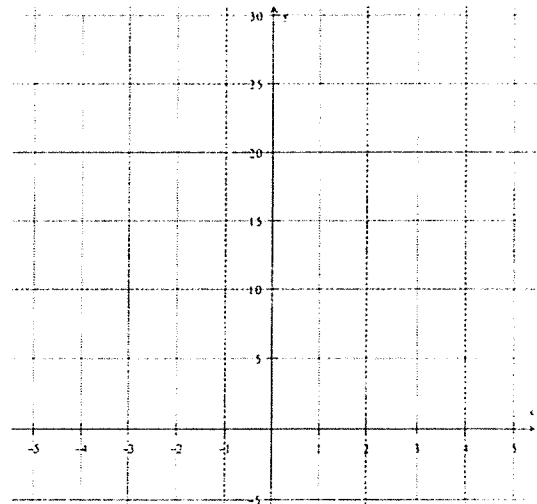
An exponential function is a function of the form $y = a(b)^x$, where a is the starting value and b is the growth rate.

Example: $y = 3(2)^x$ ← Mr. March's beard starts at 3 mm, and grows by doubling.

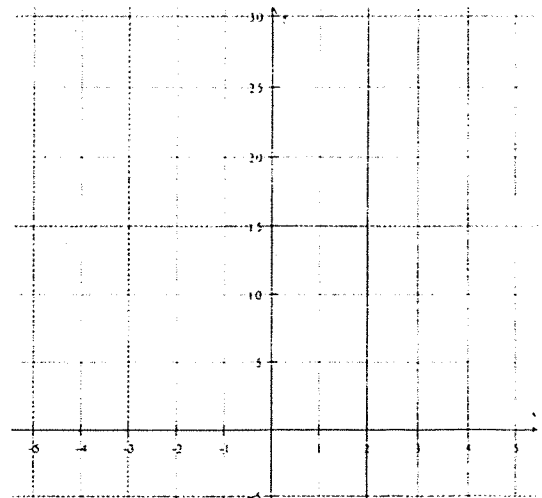
1. Here are some exponential functions. For each one, tell: 1) what the "starting" value is, and 2) what the growth (or shrink!) rate is.

- | | | | |
|----|-----------------------------------|--------------------|-----------------|
| a) | $y = 10(6)^x$ | 1) starting value? | 2) growth rate? |
| b) | $y = 5000(1.32)^x$ | 1) starting value? | 2) growth rate? |
| c) | $y = 4^x$ | 1) starting value? | 2) growth rate? |
| d) | $y = 6\left(\frac{1}{3}\right)^x$ | 1) starting value? | 2) shrink rate? |
| e) | $y = 10(0.4)^x$ | 1) starting value? | 2) shrink rate? |

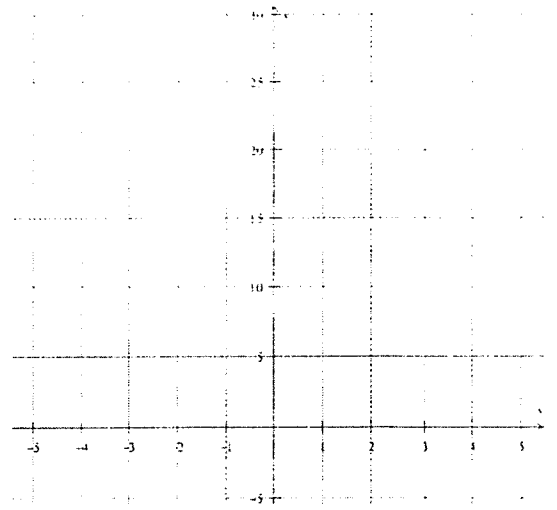
2. Graph $y = 2(4)^x$



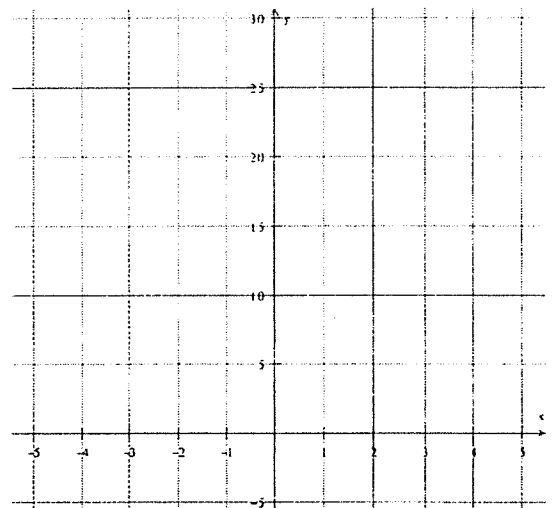
3. Graph $y = 8.54(1.82)^x$ (calculator needed)



4. Graph $y = 6\left(\frac{1}{2}\right)^x$



5. Graph $y = 3.34(0.36)^x$ (calculator needed)



6. When the growth rate is _____, the exponential function grows (exponential growth).
 When the growth rate is _____, the exponential function shrinks (exponential decay).

7. A ball rolling down a slope travels continuously faster. Suppose the function $y = 1.3(1.41)^t$ describes the speed of the ball in inches per minute. How fast will the ball be rolling in 15 minutes? Round your answer to the nearest hundredth.

8. Suppose the depth of a lake can be described by the function $y = 334(0.976)^x$, where x represents the number of weeks from today. Today, the depth of the lake is 334 ft. What will the depth be in 6 weeks? Round your answer to the nearest whole number.

Now do p. 742 #12, 14, 33, 34, 36