Algebra 2   Name_____

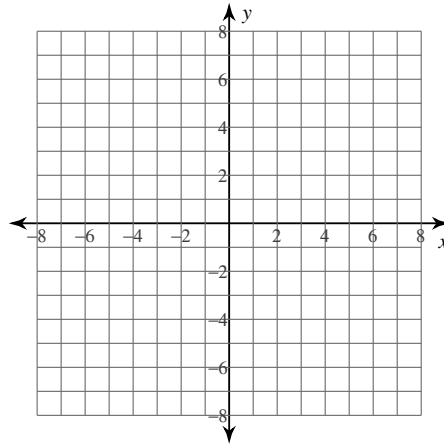# Exponential Review #2

Date_____ Period____

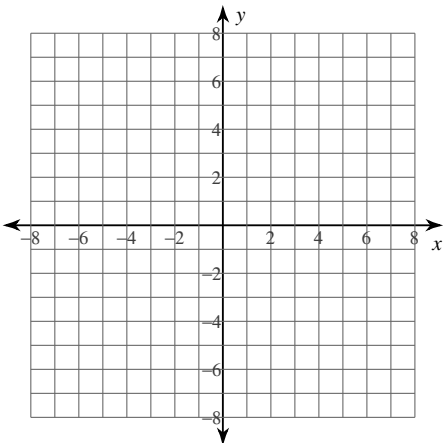**Sketch the graph of each function.**

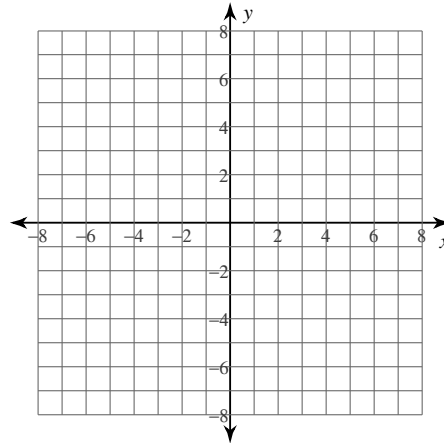1) $y = -4 \cdot 2^{x-4} + 6$
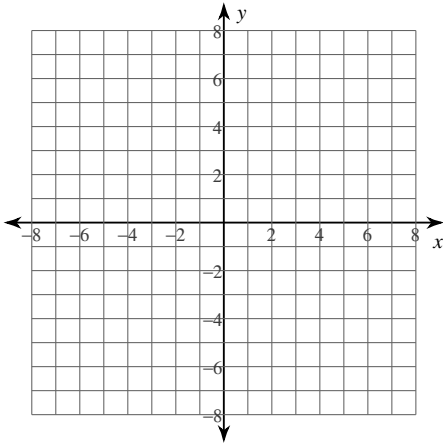
2) $y = 3 \cdot \left(\dfrac{2}{5}\right)^{x+1} - 2$

3) $y = \dfrac{1}{3} \cdot 7^{x+2} - 1$

4) $y = -3 \cdot \left(\dfrac{1}{2}\right)^{x+3} + 1$

Solve each equation.

5) $625^{a-2} = 25^{1-a}$

6) $\left(\dfrac{1}{243}\right)^{2m} = 81$

7) $36^{-3v} = 216^{-3v-2}$

8) $16^{1-b} = 4^3$

Find the exponential equation that passes through the given points.

9) (3, 3.2955) and (1, 7.8)

10) (-2,-50) and (2, -0.08)

Solve each equation. Give both the exact (written with logs) and the approximate answer (rounded to three decimal places).

11) $20^{v-3} + 8 = 86$

12) $-8 \cdot 10^{v+7} = -21$

13) $-2 \cdot 20^{10x+7} = -61$

14) $9^{2n-8} + 4 = 104$

15) $4 \cdot 10^{9-4b} + 2 = 93$

16) $-8 \cdot 12^{6-9n} - 6 = -70$

17) You have inherited land that was purchased for $30,000 in 1960. The value of the land increased by approximately 5% per year. What was the approximate value of the land in the year 2011?

18) An adult takes 400 mg of ibuprofen. Each hour, the amount of ibuprofen in the person's system decreases by about 29%.
a) How much ibuprofen is left after 6 hours?
b) Ibuprofen is no longer effective when there is less than 30 mg left in your system. How long will it take for there to be only 30 mg left? NOTE: Use logs to solve this equation.

19) During normal breathing, about 12% of the air in the lungs is replaced after one breath. Write an exponential decay model for the amount of the original air left in the lungs if the in itial amount of air in the lungs is 500 mL.
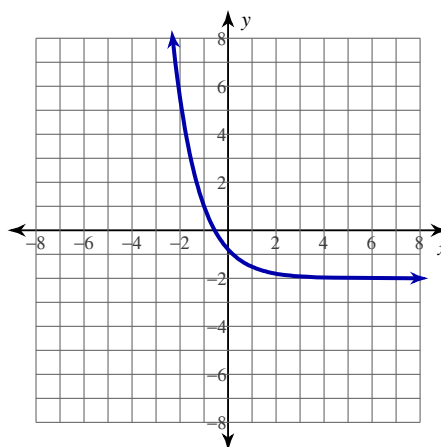a) How much of the original air is present after 15 breaths?
b) How many breaths will it take for less than 1 mL of the original air to be left in your lungs? NOTE: Use logs to solve this equation.
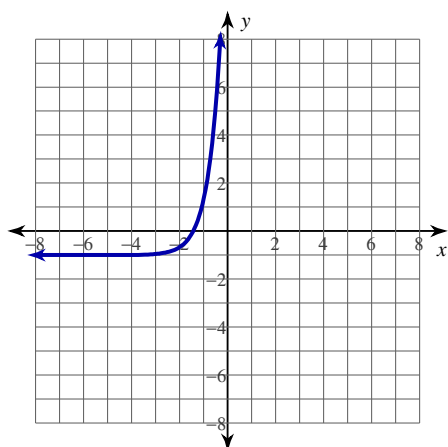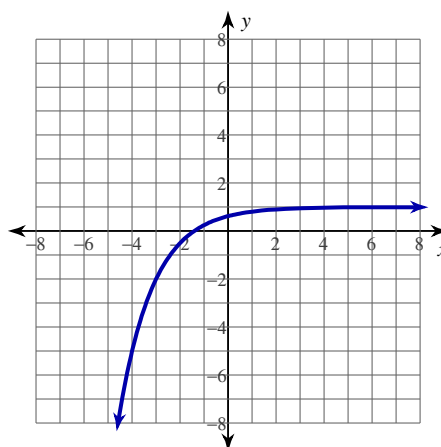
Answers to Exponential Review #2
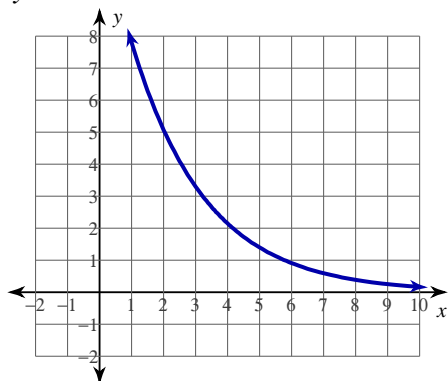
1)
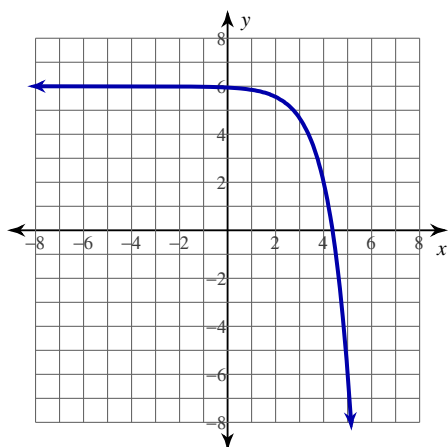
2)

3)

4)

5) $\left\{\dfrac{5}{3}\right\}$

6) $\left\{-\dfrac{2}{5}\right\}$
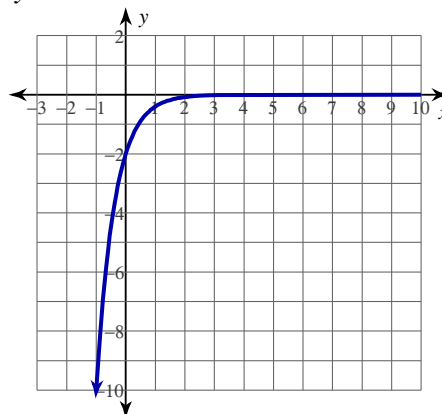
7) $\{-2\}$

8) $\left\{-\dfrac{1}{2}\right\}$

9) $y = 12 \cdot 0.65^{x}$

10) $y = -2 \cdot 0.2^{x}$

11) 4.4543

12) −6.5809

13) −0.5859

14) 5.048

15) 1.9108

16) 0.5737

17) $y = 30000 \cdot 1.05^{x}$; $361,223.09

18) $y = 400 \cdot 0.71^{x}$; 143.164 mg; 7.563 hours

19) $y = 500 \cdot 0.88^{x}$; 73.487 mL; about 49 breaths