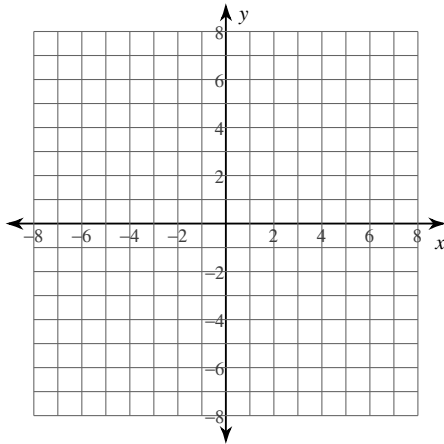


Exponential Review #1

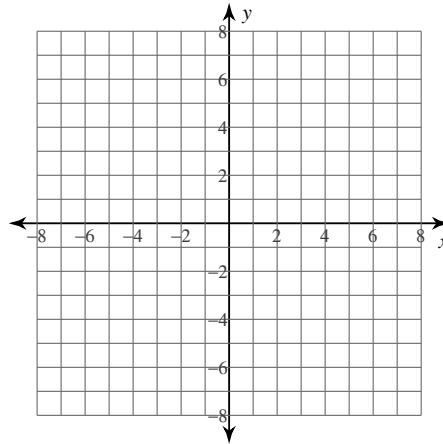
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Sketch the graph of each function.

1) $y = \frac{4}{3} \cdot 3^{x+2} - 4$



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

**Solve each equation.**

3) $49^x = 343^{-x}$

4) $8^{1-3n} = 32$

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

5) $-7^m = -56$

6) $-5 \cdot 9^n = -4$

7) $3^{p+10} - 6 = 79$

8) $3 \cdot 5^{r-5} = 99$

9) $10^{4p+7} + 2 = 24$

10) $-10 \cdot 5^{5-2k} + 3 = 1$

Find the exponential equation that passes through the given points.

11) (1,4) and (2, 12)

12) (-3,32) and (2, 1)

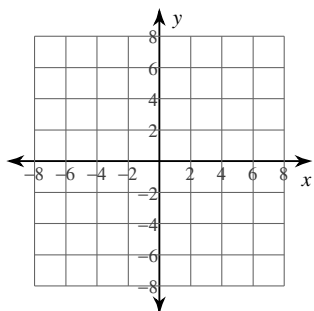
13) The world population in 1980 was about 4.5 billion people and has been increasing at approximately 1.5% per year.

a) Estimate the world population in 2020.

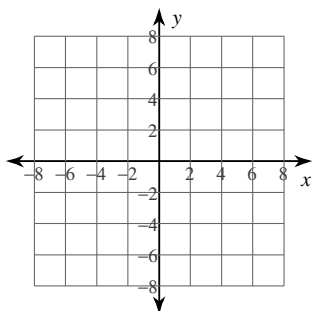
b) In what year will the population exceed 9 billion?

Answers to Exponential Review #1

1)



2)



3) $\{0\}$

4) $\left\{-\frac{2}{9}\right\}$

5) $m = \frac{\log 56}{\log 7}; 2.0686$

6) $n = \frac{\log \frac{4}{5}}{\log 9}; -0.1016$

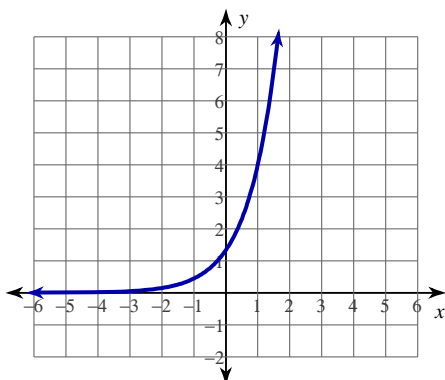
7) $p = \frac{\log 85}{\log 3} - 10; -5.9561$

8) $r = \frac{\log 33}{\log 5} + 5; 7.1725$

9) $p = \frac{\frac{\log 22}{\log 10} - 7}{4}; -1.4144$

10) $k = \frac{\frac{\log \frac{1}{5}}{\log 5} - 5}{-2}; 3$

11) $y = \frac{4}{3} \cdot 3^x$



12) $y = 4 \cdot \left(\frac{1}{2}\right)^x$

13) $y = 4.5 \cdot 1.015^x; 8.16 \text{ billion}; 2026$

