

9.2 Corrective Assignment – Exponential Decay

Algebra 2

Name: _____ ID: 2

Date: _____ Period: _____

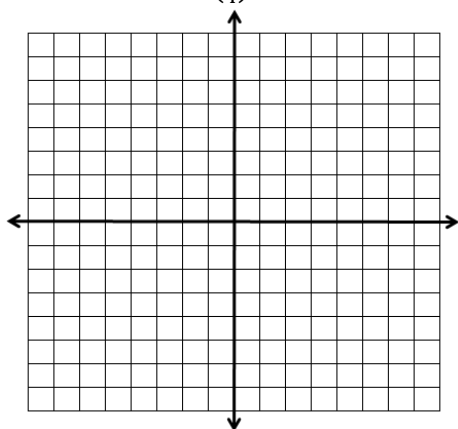
Tell whether the equation or graph represents an exponential growth or exponential decay function.

1) $y = \frac{1}{7}(3)^x$ 2) $y = -3\left(\frac{7}{10}\right)^{-x}$ 3) $y = 200(0.9)^x$ 4) $y = 0.9(200)^x$

5) $y = 0.2(4)^{-x}$ 6) $y = 0.3(5.2)^x$ 7) $y = 3.2(0.598)^x$ 8) $y = 0.2\left(\frac{1}{4}\right)^{-x}$

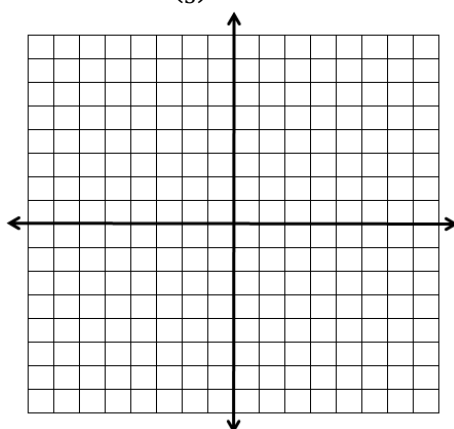
Sketch the graph of each exponential function by doing the following: Sketch the asymptote, label at least **three distinct coordinate points** on each graph, and write the domain and range of each function.

9. $y = -2\left(\frac{1}{4}\right)^x + 1$



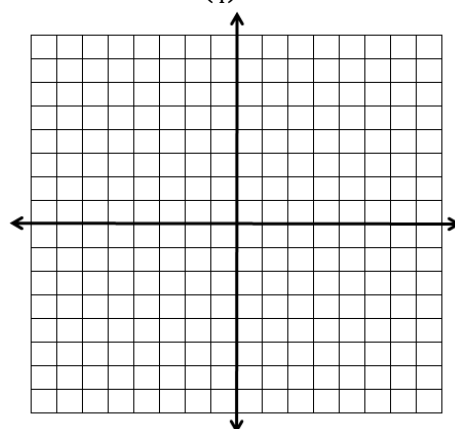
Domain: Range:

10. $y = 2\left(\frac{1}{3}\right)^x$



Domain: Range:

11. $y = 3\left(\frac{1}{4}\right)^{x+2} - 5$



Domain: Range:

Give the **percent increase** or **percent decrease** for each equation.

12) $y = 0.5(1.4)^x$ 13) $y = 3(0.88)^x$ 14) $y = 0.25(1.679)^x$ 15) $y = 1.6(3.677)^x$

16) $y = 1.4(0.04)^x$ 17) $y = 4.7(0.2)^x$ 18) $y = 32(9.2)^x$ 19) $y = 5.6(0.9504)^x$

For each scenario, write an exponential model. To keep things simple, use x as the input variable and y as the output variable.

20) The new tires on a truck have a tread depth of 0.5 inches and decays at a rate of 1.6% per week.

21) Mr. Bean's signature is currently worth \$0.02, but is increasing at a rate of 0.5% per year.

Algebra 2

Answer Key to 9.2 CA – Exponential Decay

1) Growth

2) Growth

3) Decay

4) Growth

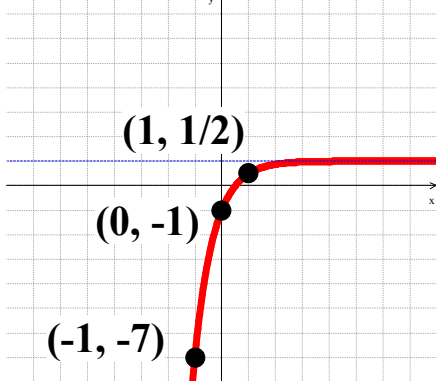
5) Decay

6) Growth

7) Decay

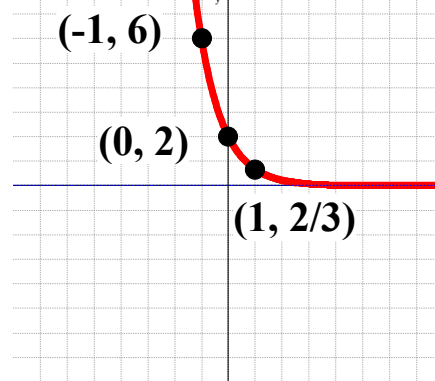
8) Growth

9. $y = -2\left(\frac{1}{4}\right)^x + 1$



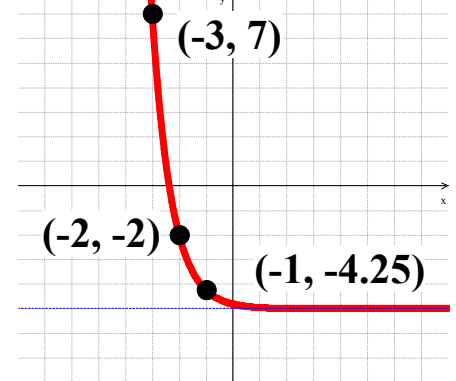
Domain: All real numbers
Range: $y < 1$

10. $y = 2\left(\frac{1}{3}\right)^x$



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

11. $y = 3\left(\frac{1}{4}\right)^{x+2} - 5$



Domain: All real numbers
Range: $y > -5$

12) 40% increase

13) 12% decrease

14) 67.9% increase

15) 267.7% increase

16) 96% decrease

17) 80% decrease

18) 820% increase

19) 4.96% decrease

20) $y = 0.5(0.984)^x$

21) $y = 0.02(1.005)^x$