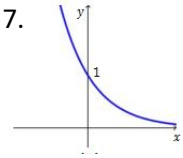
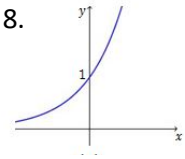
Name:_____ **CA #1** 7.2 Exp Growth and Decay

Tell whether the equation represents an exponential **growth** or an exponential **decay** function. Also, state thegrowth/decay factor, if possible.

1. $F(x) = -2(0.2)^x$
2. $F(x) = -5\left(\frac{4}{3}\right)^x$
3. $F(x) = -6\left(\frac{5}{3}\right)^x$
4. $F(x) = -3(23)^{-x}$

5. $F(x) = 8(4)^x$
6. $F(x) = 12(0.2)^x$
7. 

8. 

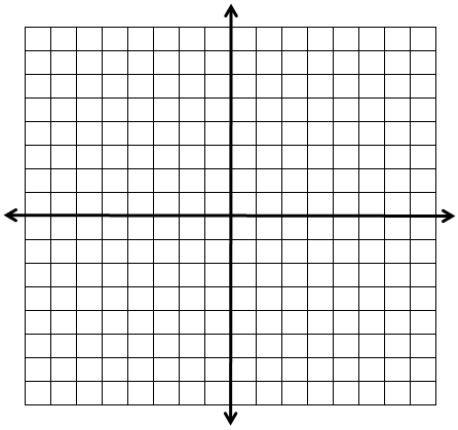

Sketch the graph of each exponential function by doing the following: Sketch the asymptote, label at least **two distinct coordinate points** on each graph, and write the domain and range of each function.

9. $F(x) = -6\left(\frac{1}{3}\right)^x$

Growth or Decay?

Domain:

Range:

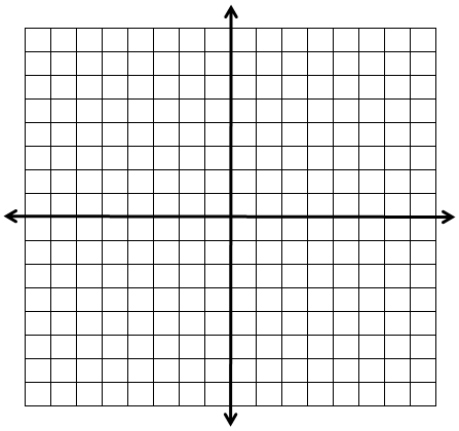


10. $F(x) = 6\left(\frac{2}{3}\right)^x$

Growth or Decay?

Domain:

Rang



9. The number of fish at a lake where the time is measured in weeks is modeled by the equation:

$$\boldsymbol{m(d) = 355(2.25)^d}$$

a. How many fish are at the lake when the initial count was taken?

b. If this rate continues, how many fish will there be 10 weeks from now.

10. Mr. Brust collects vintage Transformers. He finds a rare Optimus Prime figure for $450. Each year, the value increase by a factor of 1.09.

a. Write a model for the value of the action figure.

b. How much will Optimus Prime be worth in 10 years?

Name: _____ **CA #1** 7.2 Exp Growth and Decay

Tell whether the equation represents an exponential **growth** or an exponential **decay** function. Also, state thegrowth/decay factor, if possible.

1. $F(x) = -2(0.2)^x$ Decay DF: (0.2)

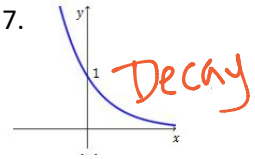
2. $F(x) = -5\left(\frac{4}{3}\right)^x$ GROWTH GF: $\left(\frac{4}{3}\right)$

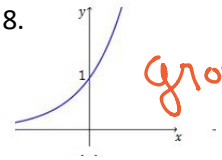
3. $F(x) = -6\left(\frac{5}{3}\right)^x$ GROWTH GF: $\left(\frac{5}{3}\right)$

4. $F(x) = -3(23)^{-x}$ Decay DF: (.043) $(23^{-1})^x \approx (.043)^x$

5. $F(x) = 8(4)^x$ GROWTH GF(4)

6. $F(x) = 12(0.2)^x$ Decay DF: (0.2)

7.  Decay

8.  growth

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

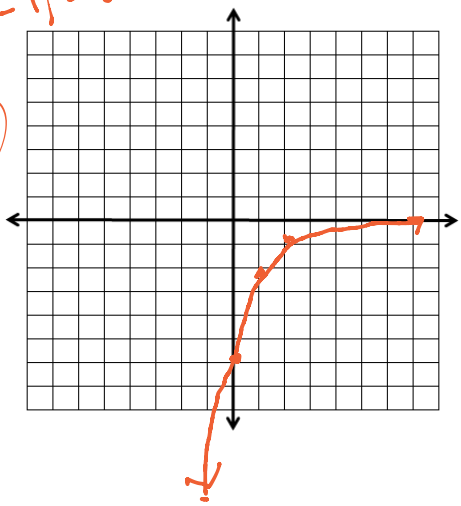
9. $F(x) = -6\left(\frac{1}{3}\right)^x$

| x | y |
|---|---|
| 0 | -6 |
| 1 | -2 |
| -1 | -18 |

Growth or Decay?

Domain: $\mathbb{R}$

Range: $F(x) < 0$



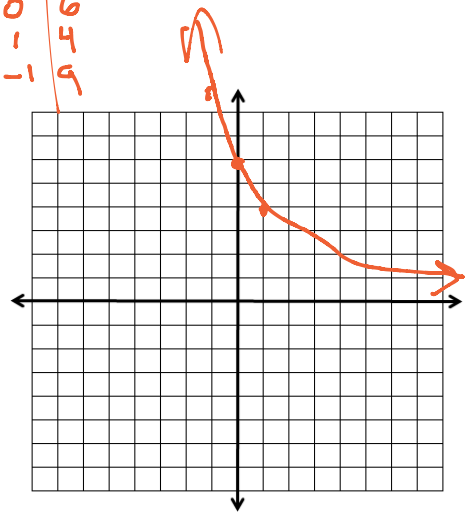
10. $F(x) = 6\left(\frac{2}{3}\right)^x$

| x | y |
|---|---|
| 0 | 6 |
| 1 | 4 |
| -1 | 9 |

Growth or Decay?

Domain: $\mathbb{R}$

Rang $F(x) > 0$



9. The number of fish at a lake where the time is measured in weeks is modeled by the equation:

$$\boldsymbol{m(d) = 355(2.25)^d}$$

a. How many fish are at the lake when the initial count was taken? 355

b. If this rate continues, how many fish will there be 10 weeks from now. 1,180,466

10. Mr. Brust collects vintage Transformers. He finds a rare Optimus Prime figure for $450. Each year, the value increase by a factor of 1.09.

a. Write a model for the value of the action figure. $F(x) = 450(1.09)^x$

b. How much will Optimus Prime be worth in 10 years? $1065.31