

Lesson 7.3 Worksheet

Name: _____

Simplify the expression.

1.) $e^{-5} \cdot e^2$

2.) $e^3 \cdot e^{-3}$

3.) $(2e^{3x})^3$

4.) $(3e^{5x})^{-1}$

5.) $\left(\frac{3e^3}{6e^2}\right)^2$

6.) $3e^x \cdot 2e^{4x}$

7.) $\sqrt{9e^6}$

8.) $\sqrt{16e^4} \cdot 2e^{-3}$

Tell whether the function is an example of *exponential growth* or *exponential decay*.

9.) $f(x) = 3e^{-x}$

10.) $f(x) = \frac{1}{3}e^{4x}$

11.) $f(x) = \frac{3}{5}e^x$

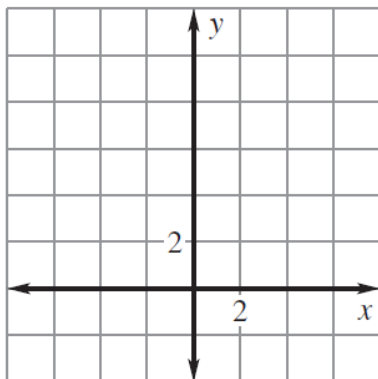
12.) $f(x) = \frac{1}{4}e^{-5x}$

13.) $f(x) = 2e^{4x}$

14.) $f(x) = 4e^{-2x}$

Graph the function. Then state the domain and range.

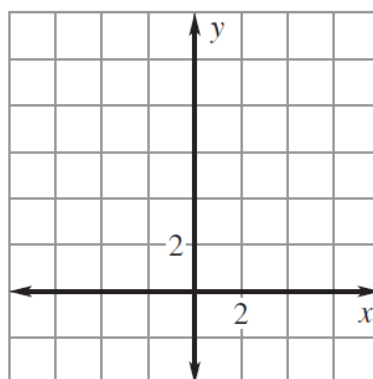
15.) $y = e^{-2x}$



domain: _____

range: _____

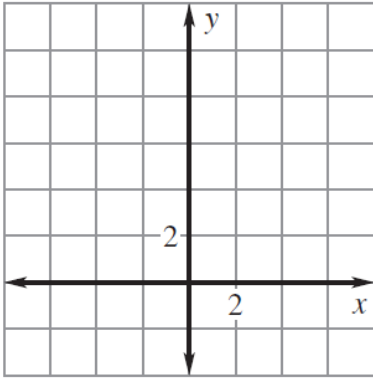
16.) $f(x) = 3e^x$



domain: _____

range: _____

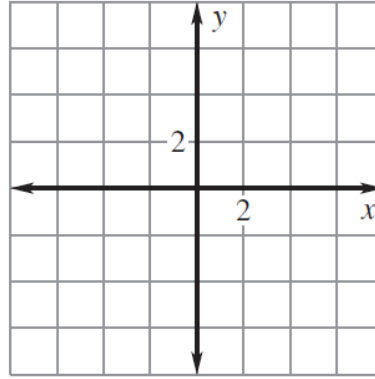
17.) $y = 2e^{-3x} - 1$



domain: _____

range: _____

18.) $f(x) = \frac{1}{2}e^{x-2} - 3$



domain: _____

range: _____

In Exercises 19 and 20, use the following information.

You deposit \$2200 into an account that pays 3% annual interest. After 15 years, you withdraw the money.

19.) What is the balance if the interest is compounded quarterly?

20.) What is the balance if the interest is compounded continuously?

21.) You buy a new mountain bike for \$200. The value of the bike decreases by 17% each year.

a.) Write a model giving the mountain bike's value y (in dollars) after t years.

b.) Use the model to estimate the value of the bike after 3 years.

c.) Estimate when the value of the bike will be about \$100.