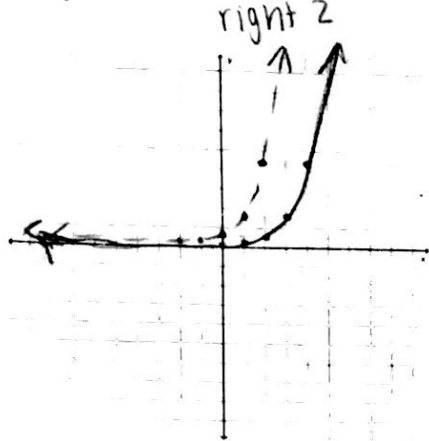


Review Lessons 7.1 – 7.3 Worksheet

Name: KEY

Graph the function. Then state the domain and range.

1.) $y = 0.6e^{x-2}$



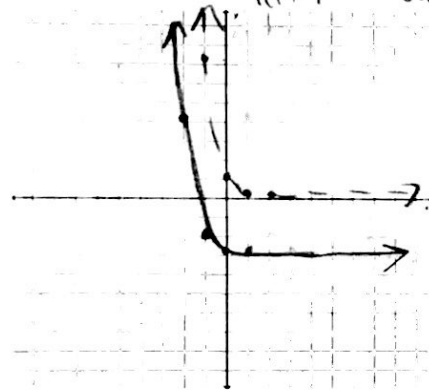
$y = 0.6e^x$

x	y
-2	0.08
-1	0.22
0	0.6
1	1.63
2	4.43
3	12.05

domain: $(-\infty, \infty)$

range: $(0, \infty)$

3.) $f(x) = e^{-2(x+1)} - 3$ down 3



$y = e^{-2x}$

x	y
-2	54.6
-1	7.39
0	1
1	0.14
2	0.02

domain: $(-\infty, \infty)$

range: $(-3, \infty)$

Simplify the expression.

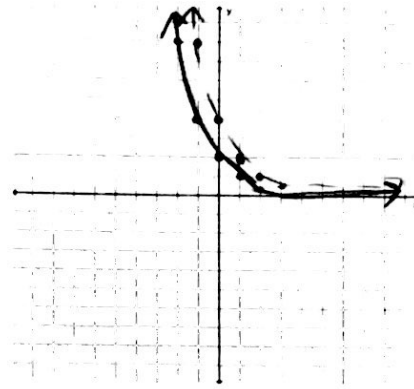
5.) $3e^4 \cdot e^3$

$3e^7$

6.) $\frac{8e^{5x}}{6e^{2x}}$

$\frac{4e^{3x}}{3}$

2.) $h(x) = 4\left(\frac{1}{2}\right)^{\frac{x+1}{1e+1}}$



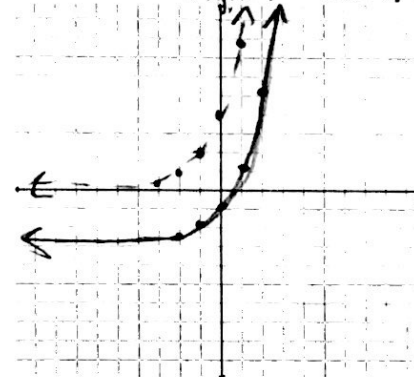
$y = 4\left(\frac{1}{2}\right)^x$

x	y
-2	16
-1	8
0	4
1	2
2	1
3	0.5

domain: $(-\infty, \infty)$

range: $(0, \infty)$

4.) $y = 4 \cdot 2^{x-1} - 3$ down 3



$y = 4 \cdot 2^x$

x	y
-3	0.5
-2	1
-1	2
0	4
1	8
2	16

domain: $(-\infty, \infty)$

range: $(-3, \infty)$

7.) $(-5e^{3x})^{-3}$
 $(-5)^{-3} (e^{3x})^{-3}$
 $-\frac{1}{125} \cdot e^{-9x}$

$-\frac{1}{125e^{9x}}$

8.) $\sqrt[3]{48e^4}$
 $\sqrt[3]{8 \cdot 6 \cdot e^3 \cdot e}$

$2e\sqrt[3]{6e}$

9.) You deposit \$3300 in a bank account. Find the balance after 5 years for each of the situations described below.

a.) The account pays 5% annual interest compounded semiannually.

$$A = 3300 \left(1 + \frac{0.05}{2}\right)^{2(5)} \approx \boxed{\$4,224.28}$$

b.) The account pays 4.9% annual interest compounded monthly.

$$A = 3300 \left(1 + \frac{0.049}{12}\right)^{12(5)} \approx \boxed{\$4,214.05}$$

c.) The account pays 4.8% annual interest compounded daily.

$$A = 3300 \left(1 + \frac{0.048}{365}\right)^{365(5)} \approx \boxed{\$4,195.06}$$

d.) The account pays 4.7% annual interest compounded continuously.

$$A = 3300 e^{0.047(5)} \approx \boxed{\$4,174.20}$$

10.) The population of a city decreased from 1995 to 2007 by 1.5% annually. In 1995 there were about 357,000 people living in the city.

a.) Write a model that represents the city's population y as a function of t years since 1995.

$$y = 357,000(1 - 0.015)^t$$

$$\boxed{y = 357,000(0.985)^t}$$

b.) Find the approximate population of the city in 2003? $\rightarrow t=8$

$$y = 357,000(0.985)^8$$

$$\approx \boxed{316,343 \text{ people}}$$

11.) The owner of an original copy of a 1938 comic book sold it at an auction in 2005. The owner bought the comic book for \$55 in 1980. The value of the comic book increased at a rate of 2.8% per year.

a.) Write a function that models the value y of the comic book over time t .

$$y = 55(1 + 0.028)^t$$

$$\boxed{y = 55(1.028)^t}$$

b.) What was the approximate value of the comic book at the time of the auction in 2005?

$$t \downarrow = 25$$

$$y = 55(1.028)^{25}$$

$$\approx \boxed{\$109.70}$$

c.) In approximately what year will the comic book be worth \$150?

$$150 = 55(1.028)^t$$

$$t \approx 36 \sim 37 \rightarrow \text{Between } \boxed{2016 \sim 2017}$$