34 Exponential Functions

Due:
12/15/2015 at 06:00am EST.

Students will be able to:

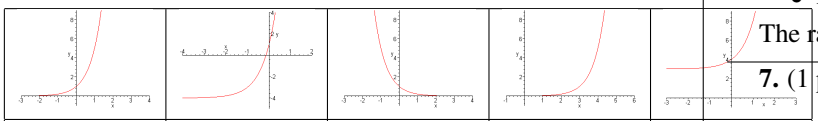
- Identify the graphs of basic exponential functions
- Evaluate exponential functions
- Solve basic exponential equations

Functions and symbols that WeBWorK understands.

Links to some useful WeBWorK pages for students

1. (1 pt) Match the functions with their graphs. Enter the letter of the graph below which corresponds to the function. (**Click on image for a larger view**)

___1. $f(x) = 5^{x-3}$
___2. $f(x) = 5^x + 3$
___3. $f(x) = 5^{-x}$
___4. $f(x) = 5^{x+1} - 4$
___5. $f(x) = 5^x$



A	B	C	D	E

2. (1 pt) For the function $f(x) = \left(\frac{1}{10}\right)^x$, calculate the following function values:

$f(-3) =$ _____
$f(-1) =$ _____
$f(0) =$ _____
$f(1) =$ _____
$f(3) =$ _____

3. (1 pt) For the function $f(x) = 7^x$, calculate the following function values:

$f(-3) =$ _____
$f(-1) =$ _____
$f(0) =$ _____
$f(1) =$ _____
$f(3) =$ _____

4. (1 pt) For the function $f(x) = 10e^x$, calculate the following function values:

$f(-3) =$ _____
$f(-1) =$ _____
$f(0) =$ _____
$f(1) =$ _____
$f(3) =$ _____

5. (1 pt) Find the exponential function $f(x) = a^x$ whose graph goes through the point $(3, 64)$.
$a =$ _____.

6. (1 pt) Given the functions,

$$f(x) = 6^x - 5$$
$$g(x) = 6^x$$

The graph of the function $f(x)$ can be obtained from the graph of $g(x)$ by one of the following actions:

- A. shifting the graph of $g(x)$ downard 5 units
- B. shifting the graph of $g(x)$ upward 5 units
- C. shifting the graph of $g(x)$ to the right 5 units
- D. shifting the graph of $g(x)$ to the left 5 units

TRUE/FALSE: The domain of the function $f(x)$ still $(-\infty, \infty)$?

- A. TRUE
- B. FALSE

The range of the function $f(x)$ is _____

7. (1 pt) Given the functions,

$$f(x) = 4^{x-5}$$
$$g(x) = 4^x$$

The graph of the function $f(x)$ can be obtained from the graph of $g(x)$ by one of the following actions:

- A. shifting the graph of $g(x)$ to the right 5 units
- B. shifting the graph of $g(x)$ upward 5 units
- C. shifting the graph of $g(x)$ downward 5 units
- D. shifting the graph of $g(x)$ to the left 5 units

TRUE/FALSE: The domain of the function $f(x)$ still $(-\infty, \infty)$?

- A. TRUE
- B. FALSE

The range of the function $f(x)$ is _____

8. (1 pt) Find the solution of the exponential equation

$4^{1-x} = 256$

in terms of logarithms, or correct to four decimal places.

$x =$ _____

9. (1 pt) Starting with the graph of $f(x) = 2^x$, write the equation of the graph that results from

(a) shifting $f(x)$ 4 units downward. $y =$ _____

(b) shifting $f(x)$ 9 units to the left. $y =$ _____

(c) reflecting $f(x)$ about the y-axis. $y =$ _____

(d) reflecting $f(x)$ about the line $x = -2$. $y =$ _____