

Lesson 8-7: Exponential Functions

Part 1: Evaluating Exponential Functions

1. 060411b

Which equation models the data in the accompanying table?

Time in hours, x	0	1	2	3	4	5	6
Population, y	5	10	20	40	80	160	320

[A] $y = 2x$

[B] $y = 5(2^x)$

[C] $y = 2^x$

[D] $y = 2x + 5$

2. 080204b, P.I. A2.A.39

What is the domain of $f(x) = 2^x$?

[A] $x \geq 0$

[B] all real numbers

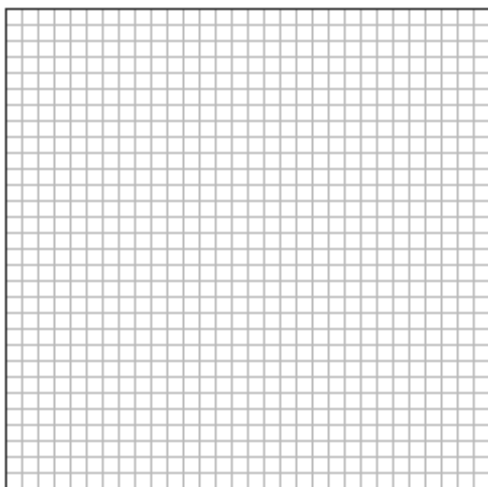
[C] all integers

[D] $x \leq 0$

Part 2: Graphing Exponential Functions

3. 010628b

On the accompanying grid, sketch the graphs of $y = 2^x$ and $3y = 7x + 3$ over the interval $-3 \leq x \leq 4$. Identify and state the coordinates of all points of intersection.

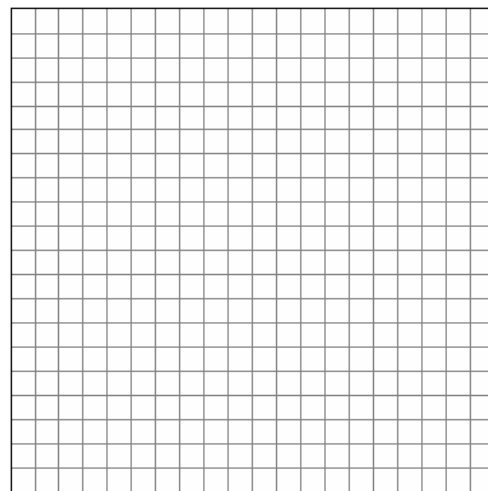


4. 010527b

On the accompanying grid, solve the following system of equations graphically:

$$y = -x^2 + 2x + 1$$

$$y = 2^x$$



5. 060519b

The graphs of the equations $y = 2^x$ and $y = -2x + a$ intersect in Quadrant I for which values of a ?

[A] $a \geq 1$

[B] $0 < a < 1$

[C] $a < 1$

[D] $a > 1$

6. 080705b

The flight paths of two Thunderbird jets are plotted on a Cartesian coordinate plane, and the equations of the jets' flight paths are represented by $y = 2^x + 3$ and $y = 0.5^x$. The best approximation of the intersection of the flight paths is

[A] $(-1.72, 3.3)$

[B] $(-2, -1)$

[C] $(-1.50, 2.82)$

[D] $(0, 1)$

[1] B _____

[2] B _____

[4] (0,1) and (3,8), and both graphs are sketched correctly.

[3] Appropriate work is shown, but one graphing error is made, but all appropriate points of intersection are identified.

[2] Appropriate work is shown, but two or more graphing errors are made, but all appropriate points of intersection are identified.

or [2] Appropriate work is shown, but one conceptual error is made, such as failing to draw the graph over the specified interval, resulting in only one point of intersection.

or [2] Both graphs are sketched correctly, and the two points of intersection are indicated, but the coordinates are not stated or are stated incorrectly.

[1] Only the graph of the exponential function is sketched correctly, and no further correct work is shown.

or [1] (0,1) and (3,8), but no graph is sketched.

[0] (0,1) or (3,8), but no graph is sketched.

or [0] Only the line is graphed correctly.

or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an

[3] obviously incorrect procedure. _____

[4] (0,1) and (1,2), and a correct graph is drawn with at least one function labeled.

[3] Appropriate work is shown, but one graphing error is made, such as plotting one point incorrectly or not labeling either function.

or [3] The graphs are drawn correctly, but only one correct solution is found or only the x- or the y-values are found correctly.

[2] Appropriate work is shown, but two or more graphing errors are made.

or [2] (0,1) and (1,2), but the solution is found by a nongraphic method.

or [2] The graphs are drawn correctly, but no correct solutions are found.

[1] The graph of only one equation is drawn correctly, and no further correct work is shown.

or [1] (0,1) and (1,2), but no work is shown.

[0] (0,1) or (1,2), but no work is shown.

or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an

[4] obviously incorrect procedure. _____

[5] D _____

[6] A _____