Name:

Unit 6 Practice Test: Exponential Functions

6B: I CAN graph exponential functions given different representations and describe key features of the graphs.

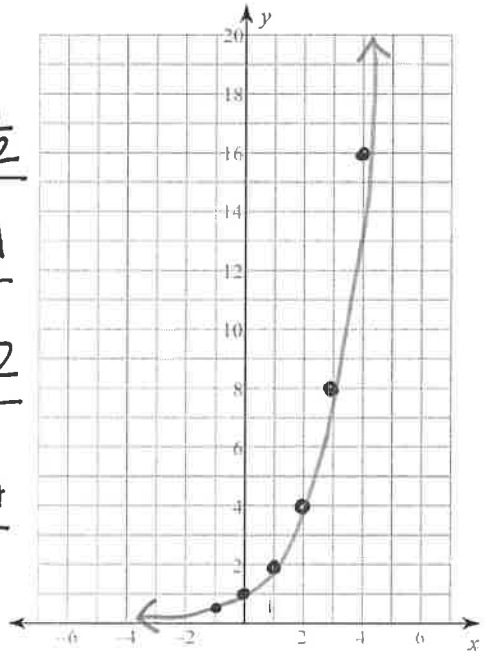
1) Complete the table based on the rule:

$y = 5 \cdot 4^x$

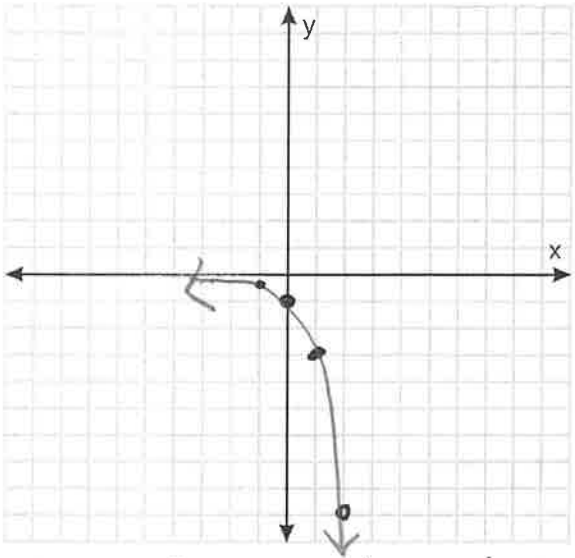
x	-1	0	1	2
y	$\frac{5}{4}$	5	20	80

2) Graph the function $y = 2^x$

x	y
-1	$2^{-1} = \frac{1}{2}$
0	$2^0 = 1$
1	$2^1 = 2$
2	$2^2 = 4$



3) Graph the function $y = -1 \cdot 3^x$

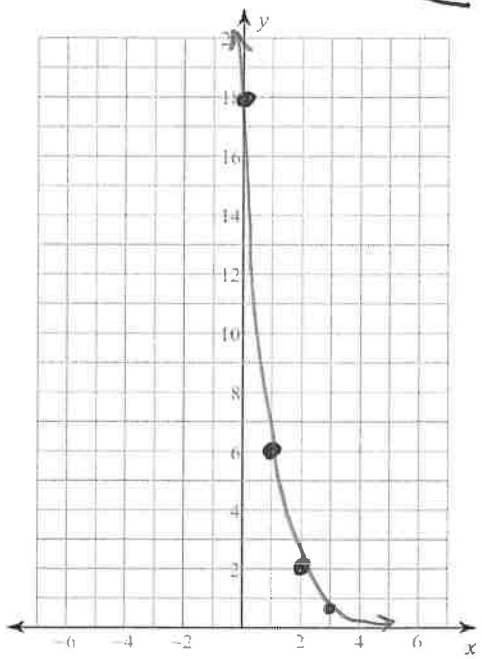


x	-1	0	1	2
y	$-1 \cdot 3^{-1} = -1 \cdot \frac{1}{3} = (-\frac{1}{3})$	$-1 \cdot 3^0 = -1 \cdot 1 = [-1]$	$-1 \cdot 3^1 = -1 \cdot 3 = [-3]$	$-1 \cdot 3^2 = -1 \cdot 9 = [-9]$

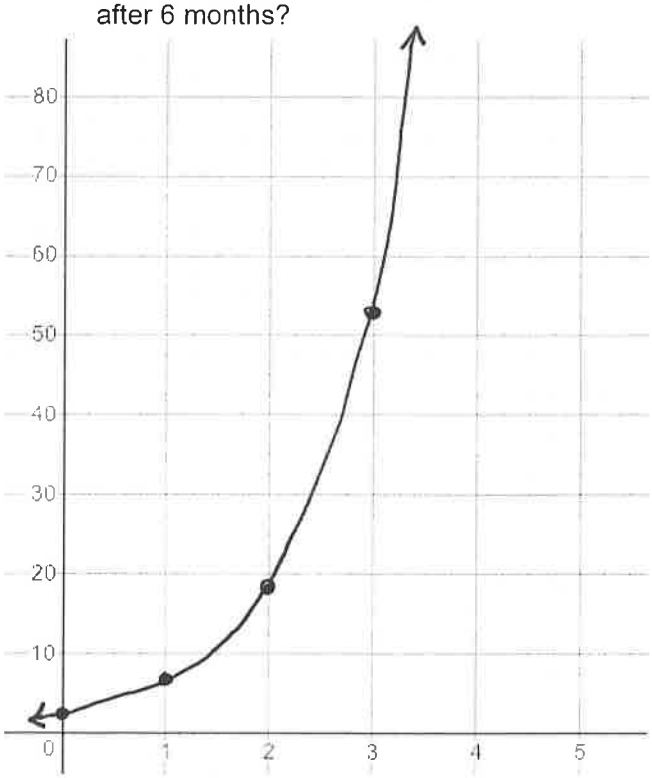
4) Graph the function $y = 18 \cdot \frac{1}{3}^x$

y-int

$\times \frac{1}{3}$ is the same as $\div 3$



5) Robert puts $2 in a savings account. Each month, his savings triple. Graph this situation. How much money does he have after 6 months?



x	0	1	2	3	4	5	6
y	2	6	18	54	162	486	1458

6C: I CAN create exponential functions from different representations, including graphs, situations, and tables.

1) Finish the rule based on the table:

x	-1	0	1	2
y	$\frac{5}{4}$	5	20	80

×4

a (y-intercept) = 5 b (multiplier) = 4

$y = 5 \cdot 4^{x}$

2) Create an exponential equation that matches the table:

x	-1	0	1	2
y	100	20	4	$\frac{4}{5}$

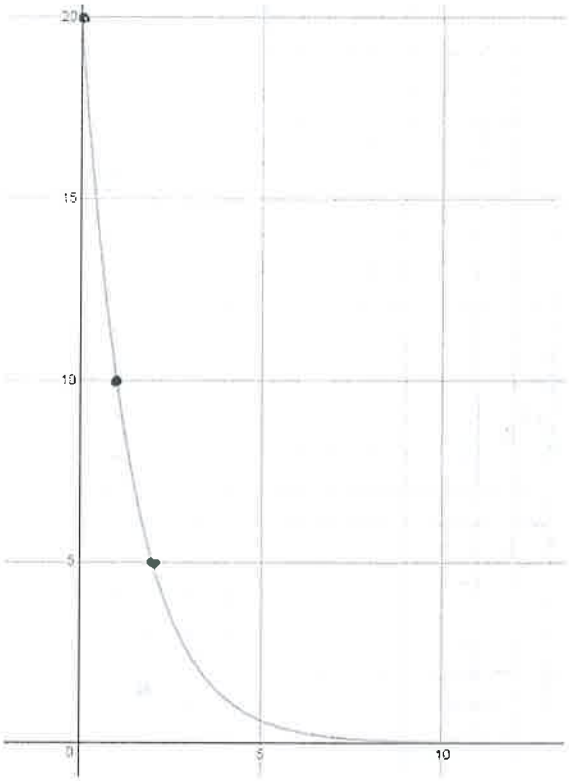
×1/5

$y = 20 \cdot \frac{1}{5}^{x}$

3) Carl owes $2500 for his student loans. After each month, the price triples until he can pay it all back. Create an equation to match the situation.

$y = 2500 \cdot 3^{x}$

4) Create an exponential equation that matches the graph:



$y = 20 \cdot \frac{1}{2}^{x}$

5) Match each exponential equation with its representation.

Graph A

x	-1	0	1	2
y	$\frac{4}{3}$	4	12	36

Graph B

x	-1	0	1	2
y	12	3	$\frac{3}{4}$	$\frac{3}{16}$

Graph C

x	-1	0	1	2
y	$\frac{3}{4}$	3	12	48

$y = 3 \cdot 4^{x}$ Matches graph table C

$y = 4 \cdot 3^{x}$ Matches graph table A

$y = 3 \cdot \frac{1}{4}^{x}$ Matches graph table B