Bell Work 1-25

Determine whether each equation represents a linear or an exponential function. Remember, an exponential function takes the form $y = a \cdot b^x$ where $a \neq 0$ and $b > 0$, $b \neq 1$. If a function is exponential, identify the variables a and b.

1) $y = 4x + 7$

Linear

(2) $y = 7(4)^x$

exponential

$a = 7$

$b = 4$

Evaluate.

1) $y = 20 \cdot 0.5^x$ for $x = 3$

$y = 20(0.5)^3 = y = 20(0.125) = y = 2.5$

2) $f(x) = 6^x$ for $x = 2$

$f(2) = 6^2$

$f(2) = 36$

3) $g(t) = 2 \cdot 0.4^t$ for $t = 4$

$g(4) = 2(0.4)^4$

$g(4) = 2(0.0256)$ $g(4) = 0.0512$

4) What is the solution or solutions of $3^x = 31$

$3^0 = 1$ $3^3 = 27$ x is between

$3^1 = 3$ $3^4 = 81$ 3 and 4

$3^2 = 9$

5) An investment of \$5000 doubles in value every decade. The function $f(x) = 5000(2)^x$, where x is the number of decades, models the growth of the value of the investment. How much is the investment worth after 30 years?

$x = 3$

$f(3) = 5000(2)^3$

$= 5000(8)$

$f(3) = 40{,}000$

worth

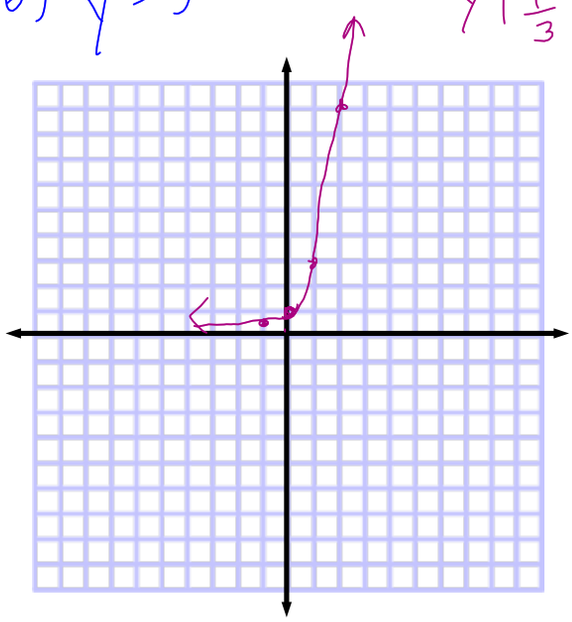
\$40,000

Graph each exponential function

1. Make a table
2. Use -1, 0, 1, 2 for x

6) $y = 3^x$

x	-1	0	1	2
y	$\frac{1}{3}$	1	3	9



$y = 3^{-1} \rightarrow y = \frac{1}{3^1} \rightarrow y = \frac{1}{3}$

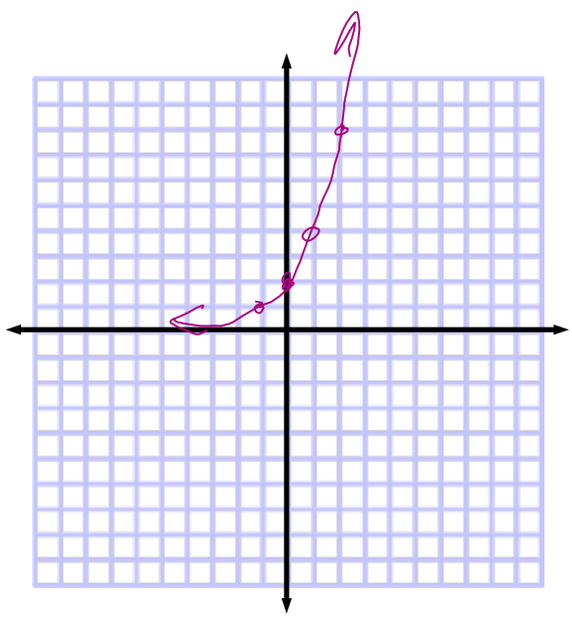
$y = 3^0 \rightarrow y = 1$

$y = 3^1 \rightarrow y = 3$

$y = 3^2 \rightarrow y = 9$

7) $y = 2 \cdot 2^x$

x	-1	0	1	2
y	1	2	4	8



$y = 2(2)^{-1} \rightarrow y = 2\left(\frac{1}{2}\right) \rightarrow y = 1$

$y = 2(2)^{0} \rightarrow y = 2(1) \rightarrow y = 2$

$y = 2(2)^{1} \rightarrow y = 2(2) \rightarrow y = 4$

$y = 2(2)^{2} \rightarrow y = 2(4) \rightarrow y = 8$