

Algebra 2

7.1 – Graphing Exponential Functions

Name: KEY

Date: _____ Period: _____

Graph each function. State all the important information.

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

Growth/Decay: GROWTH

Asymptote: $y = 4$

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

Range: $(4, \infty)$

End Behavior:

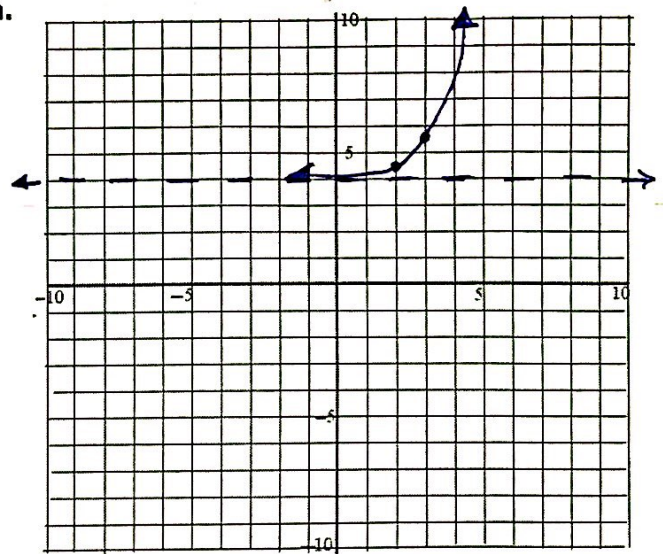
as $x \rightarrow \infty, f(x) \rightarrow \infty$

as $x \rightarrow -\infty, f(x) \rightarrow 4$

x	y
0	1/2
1	3/2

□ RIGHT 2

□ UP 4



2.) $y = 2 \left(\frac{2}{3}\right)^{x+1} - 2$

Growth/Decay: DECAY

Asymptote: $y = -2$

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

Range: $(-2, \infty)$

End Behavior:

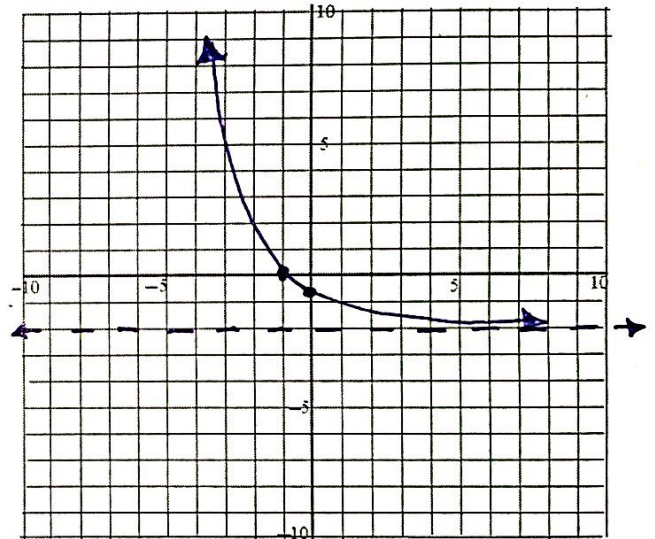
as $x \rightarrow \infty, f(x) \rightarrow -2$

as $x \rightarrow -\infty, f(x) \rightarrow \infty$

x	y
0	2
1	4/3

□ LEFT 1

□ DOWN 2



Identify the exponential function as a growth or decay; state the domain, the range, the asymptote, the end behavior, and any shifts of the function.

3.) $y = -4(3)^{x+2} + 5$

Growth/Decay: GROWTH

Asymptote: $y = 5$

End Behavior:

as $x \rightarrow \infty, f(x) \rightarrow -\infty$

as $x \rightarrow -\infty, f(x) \rightarrow 5$

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

Range: $(-\infty, 5)$

Shifts:

- REFLECTION OVER X-AXIS
- VERTICAL STRETCH OF 4
- HORIZONTAL SHIFT LEFT 2
- VERTICAL SHIFT UP 5

Graph each function. State all the important information.

5.) $y = (-2)(3)^{x+4} + 4$

x	y
0	-2
1	-6

Growth/Decay: GROWTH

Asymptote: $y = 4$

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

Range: $(-\infty, 4)$

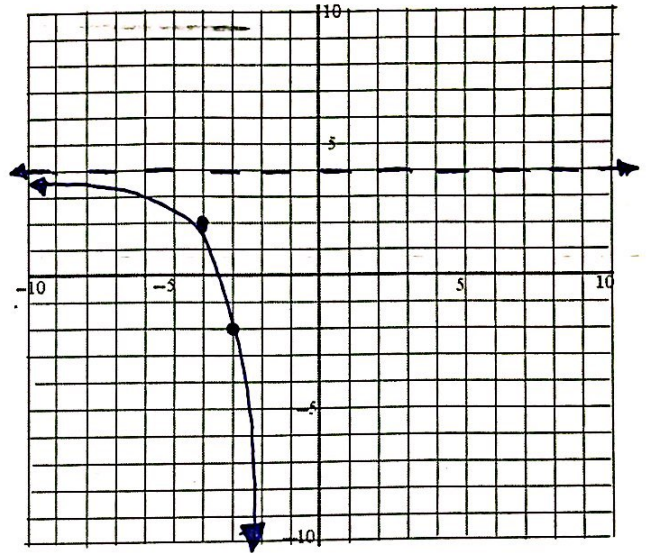
End Behavior:

as $x \rightarrow \infty, f(x) \rightarrow -\infty$

as $x \rightarrow -\infty, f(x) \rightarrow 4$

□ LEFT 4

□ UP 4



6.) $y = 4\left(\frac{3}{4}\right)^{x-3} + 1$

x	y
0	4
1	3

Growth/Decay: DECAY

Asymptote: $y = 1$

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

Range: $(1, \infty)$

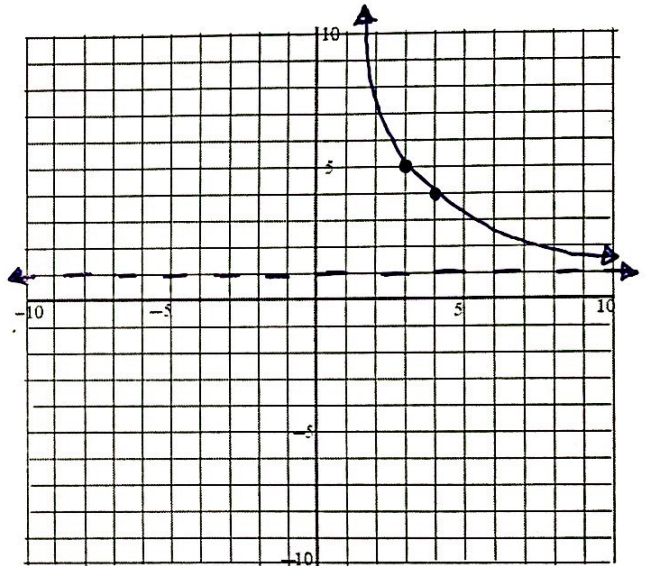
End Behavior:

as $x \rightarrow \infty, f(x) \rightarrow 1$

as $x \rightarrow -\infty, f(x) \rightarrow \infty$

□ RIGHT 3

□ UP 1



7.) $y = 2\left(\frac{3}{2}\right)^{x+1} - 3$

x	y
0	2
1	3

Growth/Decay: GROWTH

Asymptote: $y = -3$

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

Range: $(-3, \infty)$

End Behavior:

as $x \rightarrow \infty, f(x) \rightarrow \infty$

as $x \rightarrow -\infty, f(x) \rightarrow -3$

□ LEFT 1

□ DOWN 3

