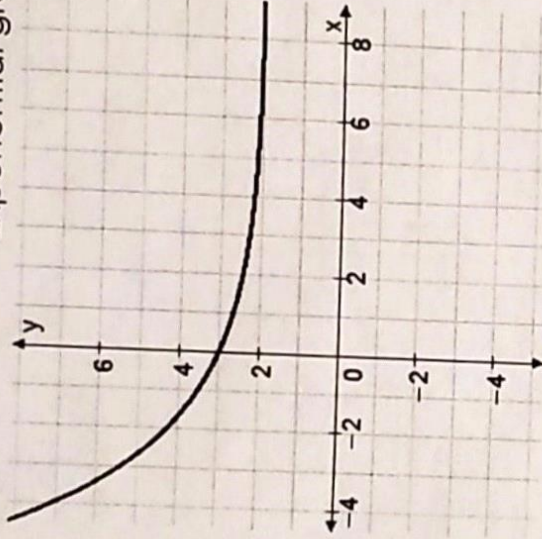
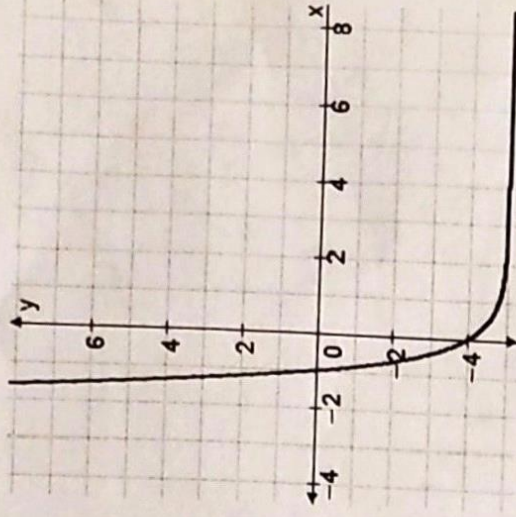


Exponential graphing!

- 1) Domain: $(-\infty, \infty)$
 Range: $(2, \infty)$
 X-intercept: none
 Y-intercept: $(0, 3)$
 Increasing or Decreasing: Increasing
 Growth or Decay: Growth
 Asymptote: $y = 2$
 End Behavior
 As $x \rightarrow -\infty, y \rightarrow \infty$
 As $x \rightarrow \infty, y \rightarrow 2$

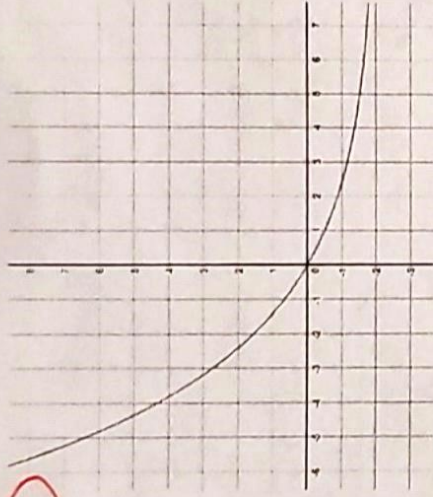


- 2) Domain: $(-\infty, \infty)$
 Range: $(-5, \infty)$
 Zero: $(-1, 0)$
 y-intercept: $(0, -4)$
 Increasing or Decreasing: Increasing
 Growth or Decay: Growth
 Asymptote: $y = -5$
 End Behavior
 As $x \rightarrow -\infty, y \rightarrow \infty$
 As $x \rightarrow \infty, y \rightarrow -5$



<p>3) $y = \frac{1}{4}(6)^{x-1} - 3$ <u>Stretch or Shrink?</u> By how much? $1/4$ <u>Growth or Decay?</u> Reflection or no Reflection? Horizontal Shift? <u>RIGHT 1</u> Vertical Shift? <u>DOWN 3</u> Asymptote? $y = -3$ y-intercept? $(0, -2.46)$</p>	<p>4) $y = -4\left(\frac{2}{3}\right)^x + 5$ <u>Stretch or Shrink?</u> By how much? 4 Growth or Decay? Reflection or no Reflection? Horizontal Shift? <u>none</u> Vertical Shift? <u>up 5</u> Asymptote? $y = 5$</p>	<p>5) $y = \frac{1}{2}\left(\frac{3}{4}\right)^{x-7}$ <u>Stretch or Shrink?</u> By how much? $1/2$ Growth or Decay? Reflection or no Reflection? Horizontal Shift? <u>RIGHT 7</u> Vertical Shift? <u>none</u> Asymptote? $y = 0$ Y-intercept? $(0, 3.75)$</p>
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6) What is the equation of the graph?



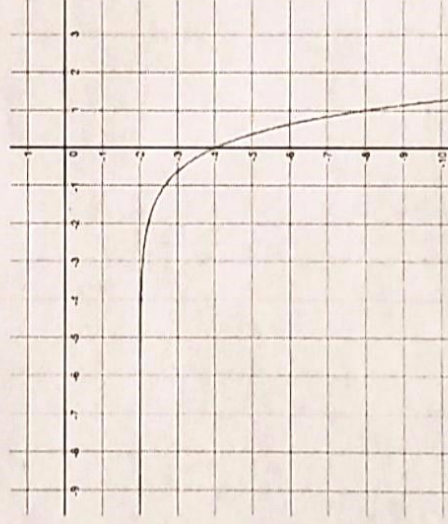
A. $y = 2\left(\frac{3}{4}\right)^x - 2$

B. $y = 2\left(\frac{3}{4}\right)^x + 2$

C. $y = 2\left(\frac{3}{4}\right)^x - 2$

D. $y = 2\left(\frac{4}{3}\right)^x - 2$

7) What is the equation of the graph?



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

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

C. $y = 2(3)^x - 2$

D. $y = -2(3)^x - 2$

8) Describe the transformations of how $f(x) = 5^x$ would change into $f(x) = 5^x + 1$

up 1

9) How is the graph $f(x) = \frac{1^x}{2}$ would change into $f(x) = \frac{1^{x-5}}{2}$

right 5

10) What is the y-intercept of $y = \frac{1}{2}(2)^x - 6$?

(0, -5.5)

11) Write the equation of a function that is a decay with a base of $\frac{2}{3}$ a asymptote of 4 and a right shift of 3.

$$y = \left(\frac{2}{3}\right)^{x-3} + 4$$

12) What would be the equation of an exponential function that is a reflected growth function by a base of 3 that is shifted up 5 and right 2?

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

13) Write an equation of an exponential graph that is a decreasing growth function?

$$y = -(3)^x$$

14) Write an equation of an exponential graph that has an asymptote of 5 and is a decreasing decay.

$$y = \left(\frac{1}{3}\right)^x + 5$$

15. Alton is saving money in his bank account. His bank gives him an interest rate of 1.3% each year. If he has \$4,000 right now how much money will he have in 10 years?

$$y = 4000(1 + .013)^{10}$$

\$4551.50

16. Riley has been putting money aside each month to save up for a vacation. She started with \$125 in her bank account. She is putting \$25 into her account every week. How much will she have after 16 weeks?

$$y = 125 + 25x$$

\$1525

17. Everyone at school seems to be getting sick with the cold. Today there are 15 students sick with the cold. If the rate that students are getting sick is doubling each day how many students will be sick in 9 days?

$$y = 15(2)^x$$

7680 kids

18. A cup of coffee is sitting on Dr. Oldham's desk. It started at 155° and the temperature is decreasing at a rate of 2.4% each minute. How hot will the coffee be in 30 minutes?

$$y = 155(1 - .024)^x$$

$$155(.976)^x$$

74.79°

19. Kia is opening up a savings account that gives her 2.3% interest compounded monthly. If she deposits \$5,000 now, how much will she have in 10 years.

$$y = 5000\left(1 + \frac{.023}{12}\right)^{12 \cdot 10}$$

\$6291.61

20. You complain that the hot tub in your hotel suite is not hot enough. The hotel tells you that they will increase the temperature by 10% each hour. If the current temperature is 75° F, How many hours will it take to get to 100°?

$$y = 75(1.10)^x$$

$$75(1.1)^x$$

4 hours

0 75

1 82.5

2 90.75

3 99.83

4 109.81

Given the following equations, answer the following

A. Is it a growth or a decay

B. What is the growth or decay percent?

21. $y = 5(1.14)^x$

GROWTH

14%

22. $y = -3(0.25)^x$

DECAY

75%

23. $y = (0.01)^x$

DECAY

99%

Given the following sequence -5, -1, 3, 7, 11, ...

24) What is a_{31} ?

$a_{31} = 115$

$a_{31} = 115$

25) Write a recursive rule to the following

$a_1 = -5$

$a_n = a_{n-1} + 4$

26) What an explicit model for the sequence above

$-5 + 4(n-1)$

$-5 + 4n - 4$

$a_n = 4n - 9$

Given the following sequence: 5, -10, 20, -40, 80, ...

27) Write the recursive rule and give a_1

$a_1 = 5$

$a_n = -2a_{n-1}$

28) Determine the twentieth term

$a_{20} = -2,621,440$

29) Write an explicit model for the sequence above.

$a_n = 5(-2)^{n-1}$

30) Given the sequence $a_n = 2(5)^{n-1}$ what is the common ratio?

5