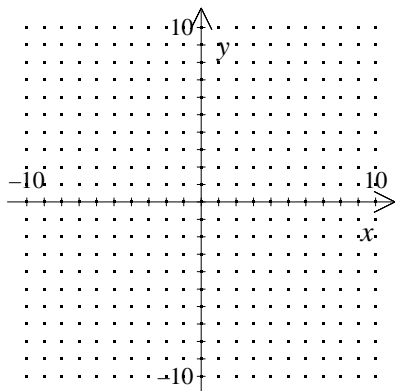


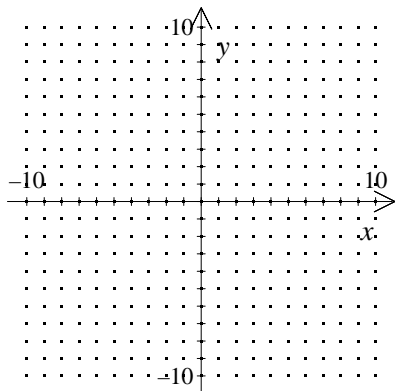
*P.I. A.G.4: Identify and graph linear, quadratic (parabolic), absolute value, and exponential functions*

1. Graph the function:  $f(x) = 3^x$



[1] \_\_\_\_\_

2. Graph the function:  $y = 2^x - 5$



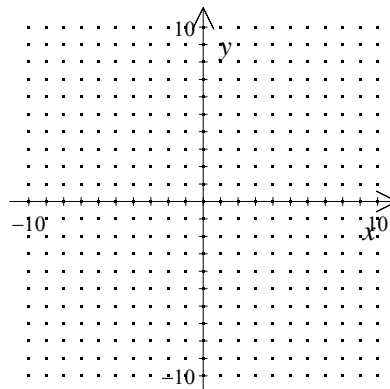
[2] \_\_\_\_\_

3. Use a graphing calculator to graph the function  $y = 0.2^x$  over the domain  $\{-3 \leq x \leq 1\}$ .

[3] \_\_\_\_\_

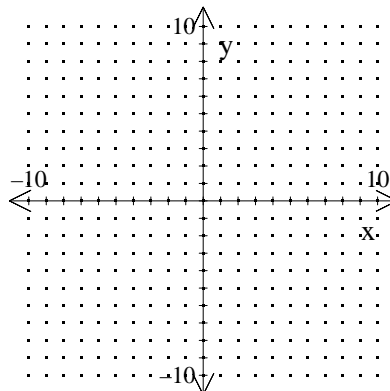
4. Graph using a graphing calculator. Sketch and describe your results.

$$y = 5^x - 3$$



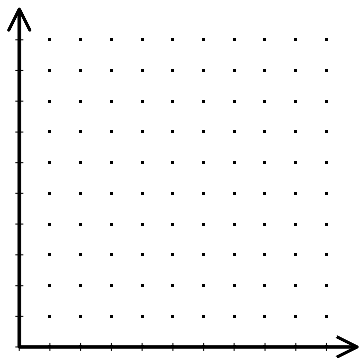
[4] \_\_\_\_\_

5. Write two exponential functions that describe growth. Graph them and tell which grows faster.



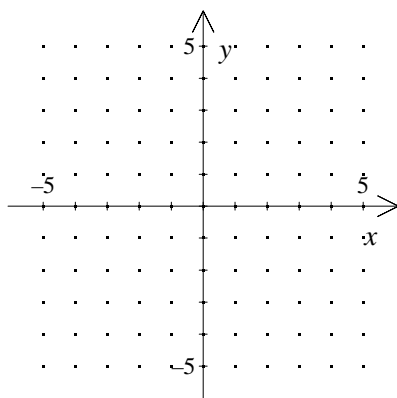
[5] \_\_\_\_\_

6. Graph the function that shows the growth in an account in which \$20,000 is compounded quarterly at 8% interest. In how many years will the account double the initial investment?



[6] \_\_\_\_\_

7. Graph the function and label as exponential growth or decay.  $y = 5 \cdot 0.4^x$



[7] \_\_\_\_\_

8. Write an equation in the form  $f(x) = ab^x$  with base 2, passing through the point (4, 4).

[A]  $f(x) = \frac{1}{4} \cdot 4^x$       [B]  $f(x) = \frac{1}{4} \cdot 2^x$

[C]  $f(x) = 2 \cdot 2^x$       [D]  $f(x) = 2 \cdot 4^x$

[8] \_\_\_\_\_

9. Write an equation in the form  $y = ab^x$  with base 3, passing through the point (5, 2).

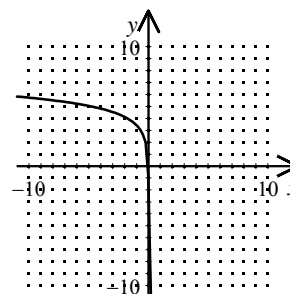
[9] \_\_\_\_\_

10. Use a graphing calculator to graph the function  $y = 2(1.15)^x$ . Find the smallest integral value of  $x$  such that  $y \geq 4$ .

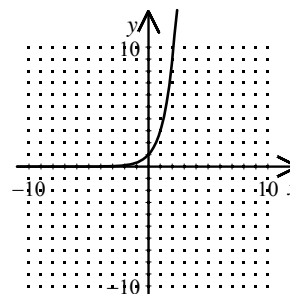
[10] \_\_\_\_\_

11. Graph the function:  $f(x) = \left(\frac{1}{3}\right)^x$

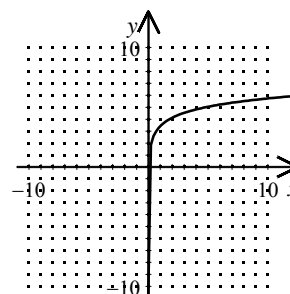
[A]



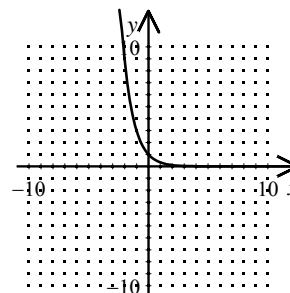
[B]



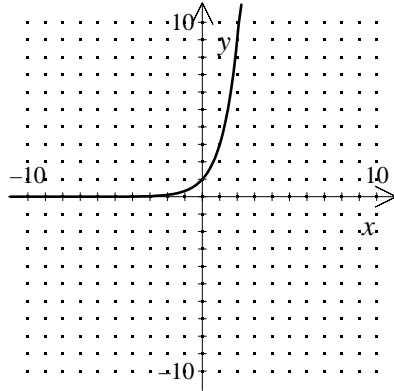
[C]



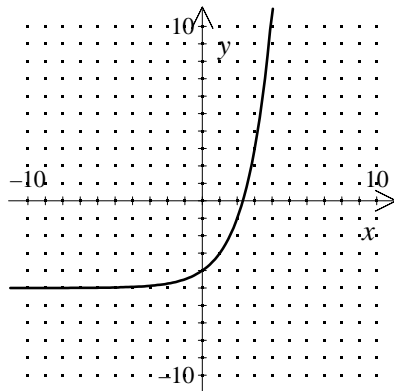
[D]



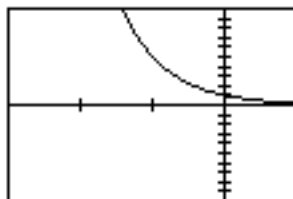
[11] \_\_\_\_\_



[1] \_\_\_\_\_



[2] \_\_\_\_\_



```
RANGE
Xmin=-3
Xmax=1
Xscl=1
Ymin=-10
Ymax=10
Yscl=1
Xres=1
```

[3] \_\_\_\_\_

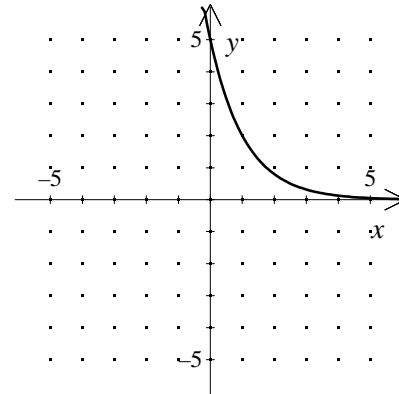
Crosses the y-axis at  $-2$ , crosses the  $x$  axis at  $0.68$ ; increases exponentially, passes through the point  $(1, 2)$  and the point  $(2, 22)$ . Check

[4] students' sketches. \_\_\_\_\_

Answers may vary. Sample:  $y_1 = 4(1.2)^x$  and

[5]  $y_2 = 4(1.8)^x$ ;  $y_2$  grows faster \_\_\_\_\_

[6]  $8.75 \approx 9$  years \_\_\_\_\_



[7] exponential decay \_\_\_\_\_

[8] B \_\_\_\_\_

[9]  $y = \frac{2}{243} \cdot 3^x$  \_\_\_\_\_

[10]  $x = 5$  \_\_\_\_\_

[11] D \_\_\_\_\_