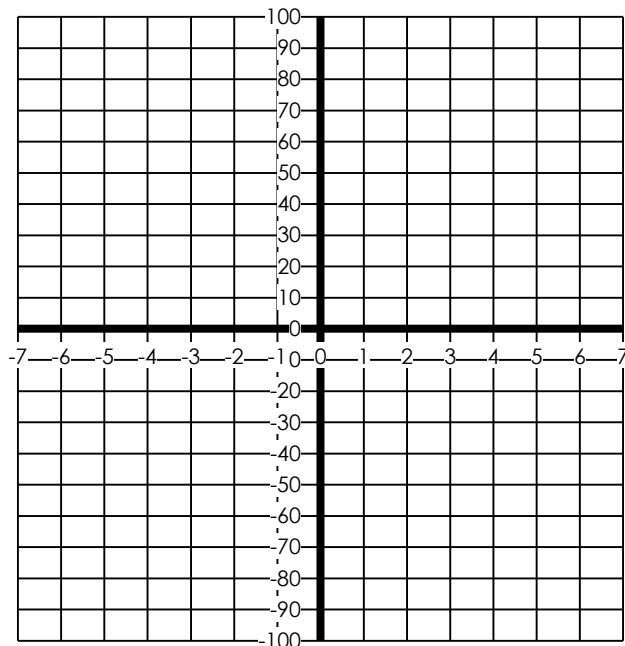


Name _____

Exponential Functions: Are you ready? (No Calculator)

- Which number is equivalent to $(10^{-2})^3$?
0.000001 0.00001 1
10 100,000 1,000,000
- Graph the following equation: $y = 3^x$.



- Does the table of values below represent a linear function, exponential function, or neither. **Explain how you know.**

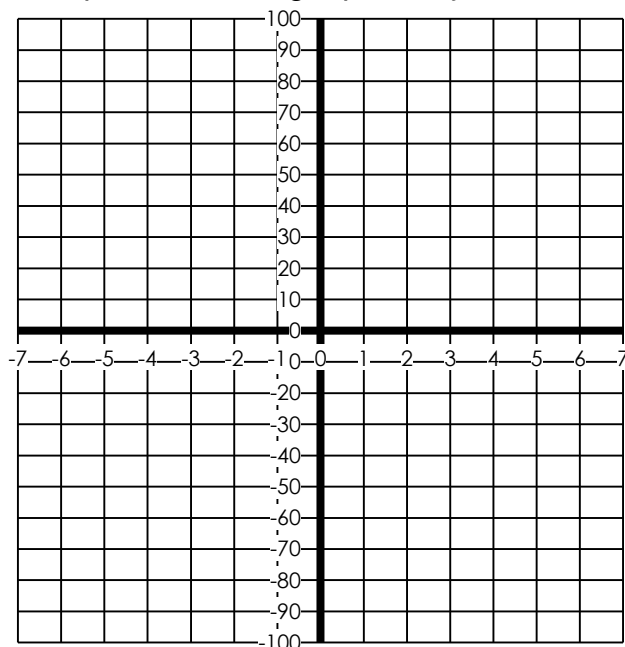
x	y
0	0
2	4
4	8
8	16

- Write a function to model the following situation: a population of wolves is currently 1200 and is decreasing at a rate of 5% each year.

Name _____

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- Which number is equivalent to $(10^{-2})^3$?
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x	y
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2	4
4	8
8	16

- Write a function to model the following situation: a population of wolves is currently 1200 and is decreasing at a rate of 5% each year.

Name _____

If you missed #1...

Simplify the following expressions by giving a decimal or integer answer.

1. 5^2 2. 10^4 3. 10^{-2} 4. $10^3 \times 10^2$

5. $(2^2)^3$ 6. $5^6 \div 5^4$ 7. $(10^{-1})^3$ 8. $(10^{-2})^{-4}$

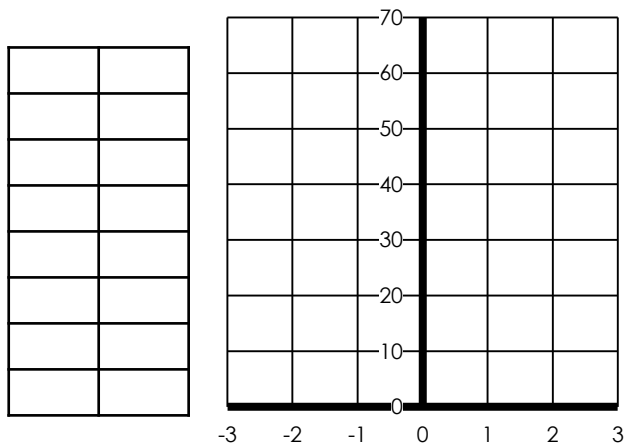
9. Simplify: $x^4 \times (x^2)^5$

10. Do the following expressions have the same value? Why or why not?
 $(4x)^2$ and $4x^2$

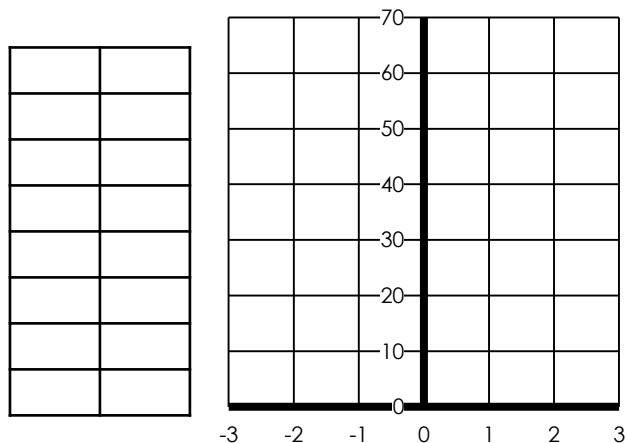
If you missed #2...

Create a table of values for each function and then graph the function.

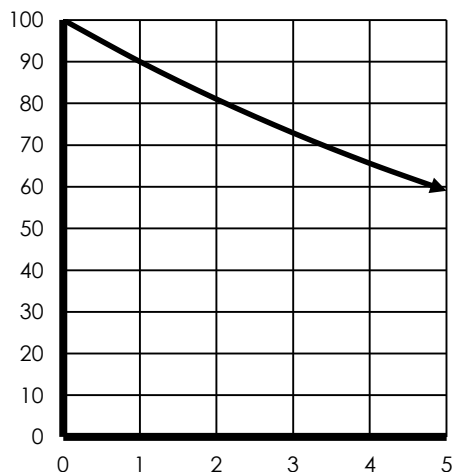
11. $f(x) = 4^x$



12. $f(x) = 2(3)^x$



13. What equation is graphed below?



A $f(x) = 100(1.1)^x$

B $f(x) = 100(-1.1)^x$

C $f(x) = -100(1.1)^x$

D $f(x) = 100(0.9)^x$

E $f(x) = 100(-0.9)^x$

F $f(x) = -100(0.9)^x$

Name _____

If you missed #3...

Decide if each relationship below is linear, exponential, or neither.

14. Jack earns \$15 for every hour he works.

15. Kelly's investment grows 9% each year.

16. In each class, 20% of the students participate in a survey.

17. Lila's bank account increases by \$15 every month.

18. $y = 7x - 2$

19. $y = x^2 + 4$

20. $y = 200(1.2)^x$

21.

x	y
0	1
1	5
2	25
3	125

22.

x	y
0	0
1	10
2	20
3	30

23.

x	y
0	0
1	-2
3	-6
4	-8

24.

x	y
0	4
1	8
3	32
4	64

25.

x	y
0	0
1	1
3	9
4	16

26. $\{(1, 5), (3, 10), (5, 15)\}$

27. $\{(5, 0.5), (6, 0.25), (7, 0.125)\}$

If you missed #4...

Write a function to model each situation.

28. Jillian has a car valued at \$5500. Its value is expected to depreciate 12% each year.

x = year, $f(x)$ = car value

29. For completing all homework, everyone's grade will be bumped by 10%.

x = original grade, $f(x)$ = new grade

30. An ice cream company charges \$2 for a scoop of ice cream and \$0.50 per topping.

x = number of toppings, $f(x)$ = price

31. The population of city is 38,000 and is expected to grow 5% every year.

x = year, $f(x)$ = population

32. Keisha has 3 pets and wants to double the number of pets she has every year.

x = year, $f(x)$ = number of pets

33. You send an email to 5 friends and ask them to send the same email to 5 friends, and so on.

x = round of emails, $f(x)$ = friends reached

34. Every year, the Pizza Palace increases their pizza prices by \$1. The current price is \$14.

x = year, $f(x)$ = pizza price