

Topic 6 – Exponential Functions Assessment

1. Write the expression below in **exponent form**:

$$w * w * w * w * w * w$$

2. Write the expression in **expanded form**:

$$y^3$$

3. Simplify the expression:

$$(123,456,789)^0$$

4. What is the correct form of an **exponential function**?

$$y = mx + b$$

$$Ax^2 + Bx + C$$

$$y = a \cdot b^x$$

$$y - y_1 = m(x - x_1)$$

5. What is the **y-intercept** of the function:

$$y = 12(3)^x$$

6. What is the **y-multiplier** of the function:

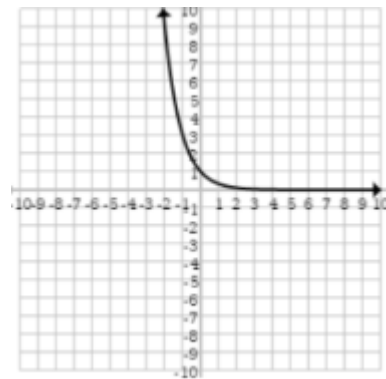
$$y = 12(3)^x$$

7. Write the equation for the table below:

x	0	1	2	3	4
$f(x)$	27	9	3	1	$\frac{1}{3}$

8. Does the graph show **growth or decay**?

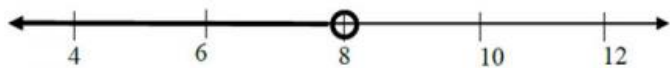
State One Sentence with “why.”



<p>9. Does the function show growth or decay? State One Sentence with “why.”</p> $f(x) = 550(0.84)^x$	<p>10. Does the function show growth or decay? State One Sentence with “why.”</p> $f(x) = 12,450(1.03)^x$
<p>11. What is the multiplier if the growth is 5.4%</p>	<p>12. What is the multiplier if the decay is 20%</p>
<p>13. A population of 100 frogs increases at an annual rate of 22%. How many frogs will there be after 5 years? (Round your answer to the nearest WHOLE number)</p>	<p>14. The population of a town is 12,000, and it grows at a rate of 5% per year. What will the population be in 4 years?</p>
<p>15. The population of a town is 20,000. It decreases at a rate of 9% per year. How many people will the town have after 2 years?</p>	<p>16. Leo invests \$2,000 at an interest rate of 4%, compounded quarterly. How much is the investment worth at the end of 3 years?</p>

<p>17. Megan invests \$4,536 into an account that has an interest rate of 2.3% that is compounded monthly. How much money will be in the account after 15 years?</p>	<p>18. If the multiplier is 1.25 is the function growth or decay?</p>
<p>19. The population of a town is about 50,000 people. It decreases at a rate of 5% per year. In about how many years will the population be LESS THAN 15,000 people?</p>	<p>20. Ms. Claus is saving her money to buy a new car. She currently has \$8,450 saved in an account that is compounded weekly at a rate of 6%. She will have enough money after 2 years of saving to buy a car for \$20,000. True or False?</p>
<p>21. Solve</p> $2(8x + 6) = 6x + 22$	<p>22.</p> $-A - 1(Ex + 1) > -'''$

23. Write the inequality represented by the graph:



24. Find the slope between the two ordered pairs

$(1, 8)$ & $(2, 10)$

25. Eddy's tow truck company charges \$70 to hook your vehicle up and an additional \$1.50 per mile that it will be towed. **How much would it cost for the car to be towed 25 miles?**