QUIZIZZ

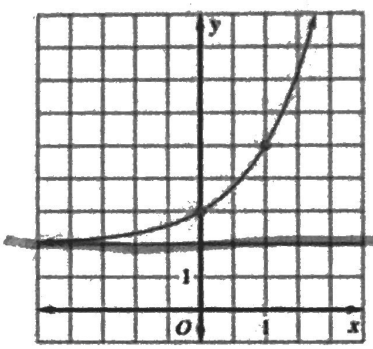
NAME : _____

CLASS : _____

DATE : _____

Exponential Functions Pre-Assessment

20 Questions

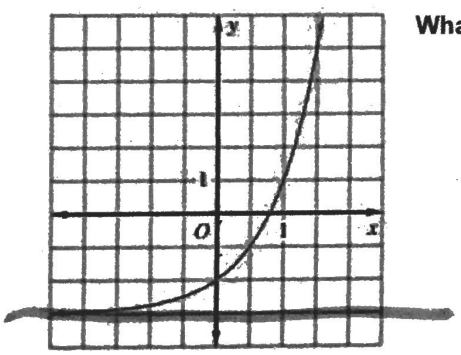
1. 

What is the asymptote of the graph shown?

Y

Y=2

- a) $x = 2$
- b) $x = 3$
- c) $y = 2$
- d) $y = 3$

2. 

What is the range of the graph shown?

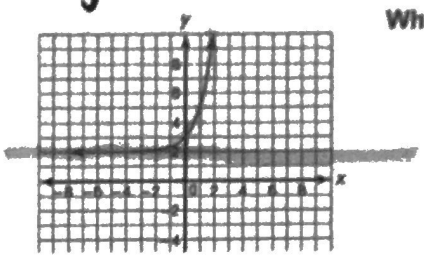
Y

Y > -3

- a) $y < -2$
- b) $y > -3$
- c) $y > 0$
- d) All Real Numbers

Y ≥ -3

growth

3. 

Which equation represents the graph shown?

$y = a(b)^{x-h} + K$

$y = 2$

K = asymptote

b > 1 - growth
b < 1 - decay

- [ ] a) $y = (3)^x - 2$
- [ ] b) $y = (1/3)^x + 2$
- [ ] c) $y = (1/3)^x - 2$
- [x] d) $y = (3)^x + 2$

h

4. The parent function f(x)= 2^x is translated right 4 units, and translated up 3 units to create g(x). Use the description to write the exponential function.

K

$y = a(b)^{x-h} + K$

h = +4 → x-4
K = +3

- [ ] a) $g(x) = 2^{x+4} - 3$
- [x] b) $g(x) = 2^{x-4} + 3$
- [ ] c) $g(x) = 2^{x+4} + 3$
- [ ] d) $g(x) = 2^{x-4} - 3$

5. What is the horizontal asymptote for the function $f(x) = 3(2)^x - 4$?

y = K
y = -4

h = +4 ✓
K = +3

- [ ] a) y = 3
- [ ] b) x = 3
- [x] c) y = −4
- [ ] d) x = −4

6.

x	1	2	3	4
y	3	9	27	81

Write the equation for the exponential function represented in the table.

geometric sequence:

$a_n = a_1 \cdot (r)^{n-1}$

$a_1 = 3$

$r = \frac{9}{3} = 3$

- [x] a) $f(x) = 3(3)^{x-1}$
- [ ] b) $f(x) = 1(3)^{x-1}$
- [ ] c) $f(x) = 3(1)^{x-1}$
- [ ] d) $f(x) = 3(x)^3$

7. What is the initial value of the function $f(x) = 122(1/2)^{x-1}$?

- [ ] a) x
- [ ] b) 1/2
- [x] c) 122
- [ ] d) -1

8. $f(x) = 40,000(0.26)^t$ Using the equation. Does this equation represent a growth or decay? Why?

→ b term

b > 1 - growth
b < 1 - decay

- [ ] a) Growth; the Base is greater than one
- [ ] b) Decay; the Base is greater than one
- [ ] c) Growth; the Base is less than one
- [x] d) Decay; the Base is less than one

9. **Jacky currently has 3,000 followers on Instagram. Her total number of subscribers is doubling every month. How many followers will she have in 3 months?**

- ☐ a) 6,000 followers
- ☐ b) 12,000 followers
- ☐ c) 24,000 followers
- ☐ d) 48,000 followers

$y = a(b)^x$
$a = 3{,}000$
$b = \text{doubled} = 2$
$x = 3$
$y = 3{,}000(2)^3$

10. **The function $f(x) = 10{,}000(0.922)^x$, where x is the time in years, models a declining Beluga whale population. How many whales will there be in 5 years?**

- ☐ a) 8500
- ☐ b) 6663
- ☐ c) 46100
- ☐ d) 18440

$x = 5$

11. **Find the geometric sequence with ratio r = 4.**

- ☐ a) 1, 5, 9, 13, 17, ...
- ☐ b) 5, 20, 80, 320, ...
- ☐ c) -11, 44, -176, 704, ...
- ☐ d) -4, -16, -64, -256, ...

12.	n	1	2	3	4	...
a_n	-4	-12	-36	-108	...

What is the explicit formula for the sequence shown in the table below?

$a_n = a_1 \cdot r^{n-1}$
$a_1 = -4$

- ☐ a) $a_n = 4(-3)^{n-1}$
- ☐ b) $a_n = -4(3)^{n-1}$
- ☐ c) $a_n = 3(-4)^{n-1}$
- ☐ d) $a_n = 3(-4)^{n-1}$

13. 

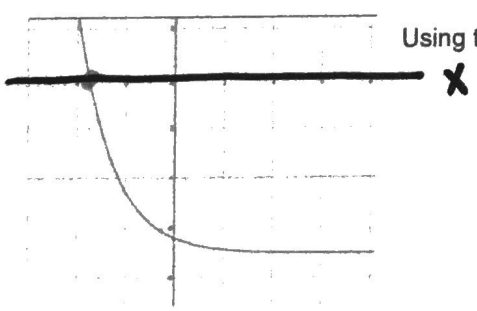
Consider this pattern. Which explicit function represents the sequence that represents the pattern?

$r = \frac{-12}{-4} = 3$

- ☐ a) $a_n = 1(4)^{n-1}$
- ☐ b) $a_n = 4(1)^{n-1}$
- ☐ c) $a_n = 4(16)^{n-1}$
- ☐ d) $a_n = 16(64)^{n-1}$

n	1	2	3	4
an	1	4	16	64

$a_1 = 1$

14. 

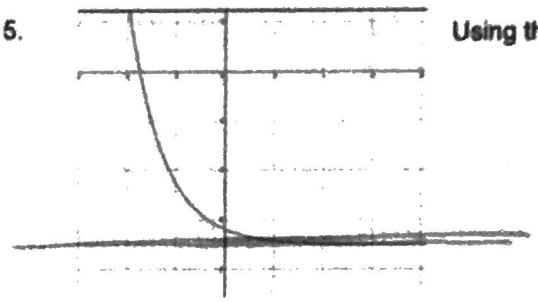
Using the graph above: What is the x intercept?

$r = \frac{4}{1} = 4$

- point where we cross x-axis
- where $y = 0$

- ☐ a) (-5, 0)
- ☐ b) (-3.5, 0)
- ☐ c) (0, -5)
- ☐ d) (0, -3.5)

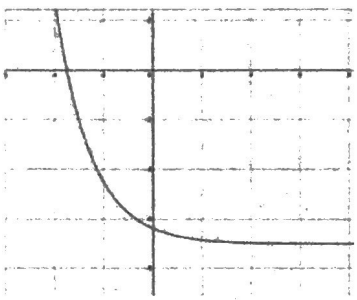
(x, y)
$(x, 0)$

15. 

Using the graph above: What is the asymptote?

Y

☐ a) x = -6
☐ b) x = -7
☐ c) y = -6
☐ d) y = -7

16. 

Using the graph above: What is the domain?

☐ a) All Real Numbers
☐ b) $y > -5$
☐ c) $y < -7$
☐ d) $y > -7$

17. | x | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
|---|---|---|---|---|---|---|---|
| f(x) | | | | | | | |

Filling in the table above for the function below. What is f(x) when x = -1?

$f(x) = -2(3)^{x+1}$

$f(x) = -2(3)^{-1+1}$
$f(-1) = -2$

☐ a) -2
☐ b) -6
☐ c) -12
☐ d) -54

18. | x | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
|---|---|---|---|---|---|---|---|
| f(x) | | | | | | | |

Filling in the table above for the function below. What is f(x) when x = 0?

$f(x) = -2(3)^{x+1}$

$f(0) = -2(3)^{0+1}$

☐ a) -54
☐ b) -12
☐ c) -6
☐ d) -2

19. 

Filling in the table above for the function below. What is f(x) when x = 1?

$$f(x) = -2(3)^{x+1}$$

$f(1) = -2(3)^{1+1}$

☐ a) -6

☐ b) -2

☐ c) -18

☐ d) -54

20. 

Filling in the table above for the function below. What is f(x) when x = 2?

$$f(x) = -2(3)^{x+1}$$

$f(2) = -2(3)^{2+1}$

☐ a) -54

☐ b) -12

☐ c) -6

☐ d) -2