

KEY

Show all five representations of the following real-world functions. Then identify if the function is linear or exponential, x- and y- intercepts, and end behavior.

1. Kara has \$18. She's playing a game that cost 50 cents per game.

- a. Written Description:

KARA HAS \$18 + SPENDS 50¢ FOR EACH GAME
REDUCING HER MONEY.

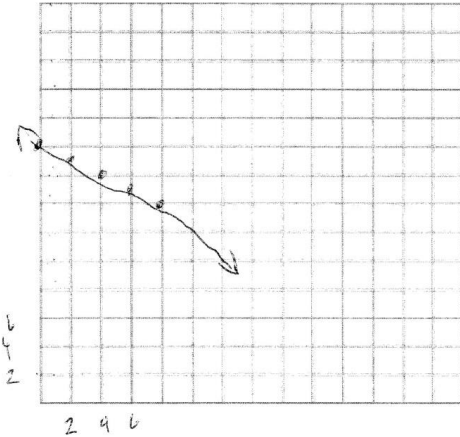
- b. Draw Tiles:



- c. Make a Table:

STEP	1	2	3
MONEY	17.50	17	16.50

- d. Draw a graph:



- e. Write the function:

$$18 - (0.50)(\text{STEP} - 1) = \text{MONEY}$$

- f. Linear or exponential?

LINEAR

- g. What are the x- and y- intercepts? What do they mean in the context of this problem?

X-INT # OF STEPS TO SPEND ALL HER MONEY

Y-INT AMOUNT OF MONEY BEFORE SHE STARTS GAME

- h. Describe the end-behavior of this function.

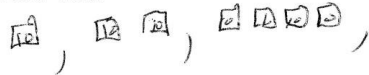
AS STEP \rightarrow 36 MONEY \rightarrow 0

KEY

2. Ten bacteria were placed in a container and the number of bacteria doubled every hour.
- a. Written Description:

10 BACTERIA INCREASE BY A FACTOR OF 2 EACH HOUR.

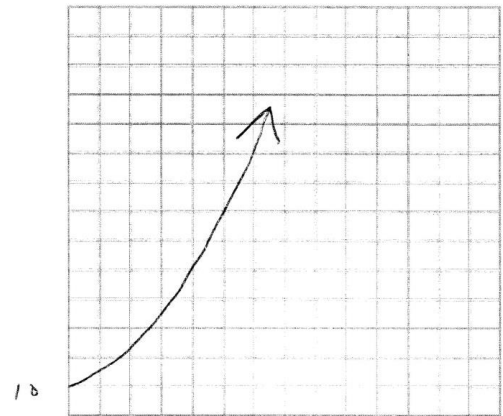
- b. Draw Tiles:



- c. Make a Table:

Steps/Hours	1	2	3	...
# of Bacteria	10	20	40	...

- d. Draw a graph:



- e. Write the function:

$$10(2)^{(\text{STEP}-1)} = \text{Amount}$$

- f. Linear or exponential?

Exponential

- g. What are the x- and y- intercepts? What do they mean in the context of this problem?

x-intercept - NONE

y-intercept - 10 BACTERIA AT STEP 1

- h. Describe the end-behavior of this function.

AS HOURS $\rightarrow \infty$ BACTERIA $\rightarrow \infty$