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# ComparingLinearandExponentialFunctionsWorksheet







# ANSWER KEY - ANSWER KEY

**Directions:** Using your definitions of linear and exponential functions, write whether each situation below could be best modeled with a linear function or an exponential function.

1. You get a new job! The starting salary is \$20,000 per year, with a \$650 yearly raise.

2. Zombies attack! Every night, the number of people infected with the zombie virus triples!

### linear

exponential

3. While getting ready for Halloween, the M&M factory produced 7,000 bags of candy per hour.

4. Bacteria are growing in a Petri dish. There are 5,000 the first hour, 10,000 after two hours, and 20,000 after three hours!

### linear

# exponential

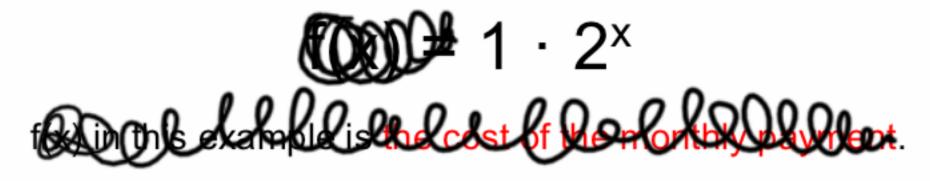
5. You buy a \$100 iTunes gift card and then buy one hundred \$1 songs to listen to.

6. You got a new job! The starting salary is \$20,000 per year, with a 4% yearly raise.

### linear

exponential

**Directions:** The exponential function that describes the BIG Deals Wireless phone plan is shown below. Complete the sentences describing the pieces of the equation.



1 in this example is the starting cost of the plan (\$1).

2 in this example is the factor by which the cost increases (it doubles).

x in this example is the number of months that have passed. (time)

Application: Write new equations that could be used to model the cost of the following phone plans.

1. \$20 per month, quadruples every month

2. \$3 per month, doubles every month

 $20 \cdot 4^x$ 

3. \$30 per month flat rate

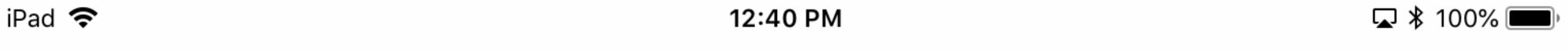
4. \$40 per month, increases 2% every month

30X + ()

 $40 \cdot 1.02^{x}$ 

ANSWER KEY - ANSWER KEY

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# 1.12TranslatingAlgExpressions2







Answer Key

Testname: 1.12 TRANSLATING ALG EXPRESSIONS 2

- 1) B 2) C 3) C 4) B 5) B 6) D 7) C 8) B 9) D
- 10) D

# 1.12 Translating Algebraic Expression 2

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Write the phrase as a variable expression. Use x to represent "a number."

1) the difference of Five and a number

A)5x

B) 5 - x

C) x - 5

D)  $\frac{5}{x}$ 

2)

2) The quotient of 38 times a number and -4

A) 38x + 4

B) 38x - 4

C)  $\frac{38x}{-4}$ 

D)  $\frac{1}{-152x}$ 

3) A number divided by -11

A)  $\frac{-11}{x}$ 

B) -11x

C)  $\frac{x}{-11}$ 

D) x - (-11)

3) \_\_\_\_\_

4) Negative thirteen decreased by 3 times a number

A) 13 - 3x

B) -13 - 3x

C) - 13 + 3x

D) 13 + 3x

4) \_\_\_\_\_

5) The sum of -9 and a number

A)-9 - x

B) -9 + x

C)9 + x

D) -9x

5) \_\_\_\_\_

6) Eleven subtracted from a number

A) 11 - x

B) 11x - 11

C)  $\frac{x}{11}$ 

D) x - 11

6) \_\_\_\_\_

7) The quotient of 40 and the product of a number and -8

A)  $\frac{40}{x}$  - 8

B) -320x

C)  $\frac{40}{-8x}$ 

D)  $\frac{-8x}{40}$ 

7) \_\_\_\_\_

8) Twice a number, decreased by 58

A) 2(x - 58)

B) 2x - 58

C) 2x + 58

D) 2(x + 58)

8) \_\_\_\_\_

9) A number subtracted from -20

A) -20x

B) -20 + x

C) x - (-20)

D) -20 - x

9) \_\_\_\_\_

10) Five times the sum of a number and -23

A) 5+x+(-23)

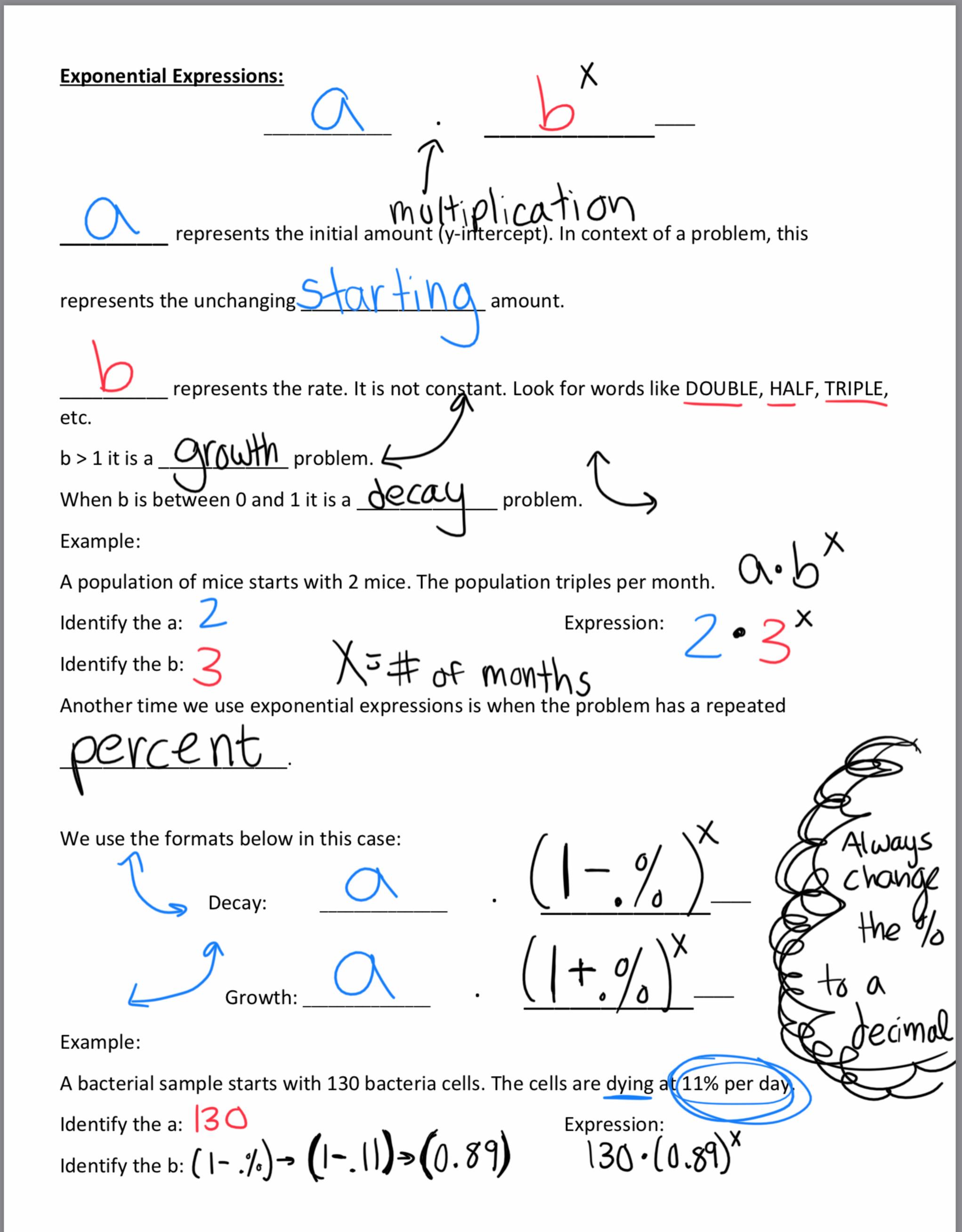
B) 5x - (-23)

C) 5x + (-23)

D) 5[x + (-23)]

10) \_\_\_

# Linear and Exponential EXPRESSIONS



# Expressions

NO TOTAL IS DISCUSSED IN THE PROBLEM
Expressions do not have an sign.
Linear Expressions: x +
represents the slope. In context of a problem, this means the of
<u>Change</u> .
represents the y-intercept. In context of a problem, this represents the unchanging
Starting_amount.
To recognize a linear expression, look for a <u>CONSTON</u> rate of change. For example, a rate of change of \$24 per month.
Example: You are buying a computer on layaway. You make a \$250 deposit and then make weekly payments of \$50.
Identify the m: $\frac{5}{0}$
Identify the b: $250$ $X=47$ of Months

Write an expression to represent this scenario: