Independent and Dependent Variables

Warm-Up

Notes
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Classwork:
Cause/Effect Chart

Homework:
Practice (2 pages)

Test Corrections due Friday
(Tues PM, Wed AM, Thurs AM/PM, Fri AM)

Warm-Up

1. Kimberly has a budget of at most $76 to spend on clothes. A sweater costs $15 and a jacket costs $23. Both prices include tax. Which inequality can be used to determine j, the number of jackets she can buy if she also buys 2 sweaters?

A. $23j + 30 \leq 76$
B. $15j + 23 \leq 76$
C. $(23 + 30)j \leq 76$
D. $23j - 30 \leq 76$

2. Which expression is equivalent to $2(x+6) - (x-2)$?

A. $x + 14$
B. $x + 10$
C. $x + 8$
D. $4x + 8$

Yesterday's notes:

How fast I wake up in the morning depends on how much sleep I get the night before.

dep.

ind.

Independent:
Dependent:

CAUSE

what I can change?

EFFECT

what changes

The more I sweat depends on how much I run.

Independent:
Dependent:

running

sweat

FUNCTION

You will write your 2 best dependent relationships on a large sheet of paper and then hang them up around the classroom.

You will now have 5 minutes to walk around the room and investigate the relationships that other teams found! You need to write down 5 other relationships (on the back of your notes) and identify the independent and dependent variable in each.

Circle the dependent variable and underline the independent variable.

QUESTIONS:
1. Does the relationship make sense?
2. What are the independent and dependent variables?

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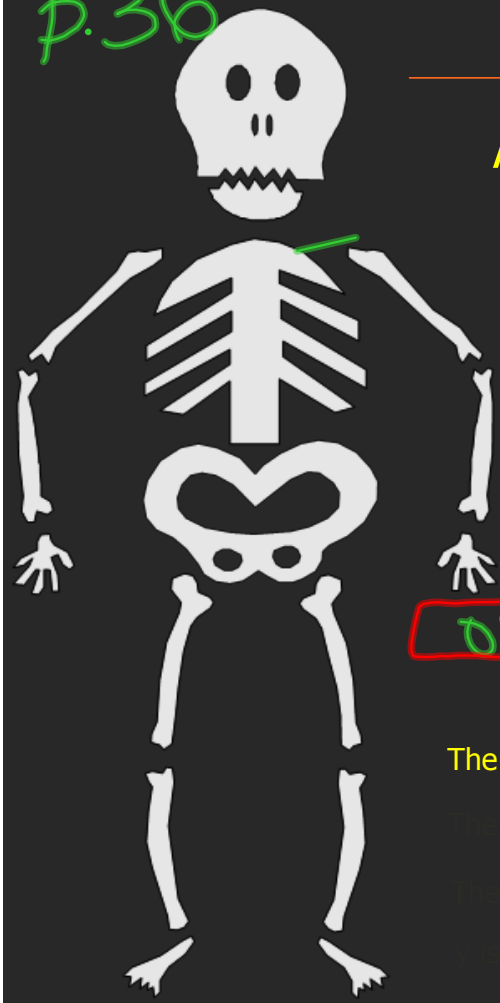


Cause & Effect

A mathematical **function** expresses a dependency relationship: one quantity depends in a systematic way on another quantity.

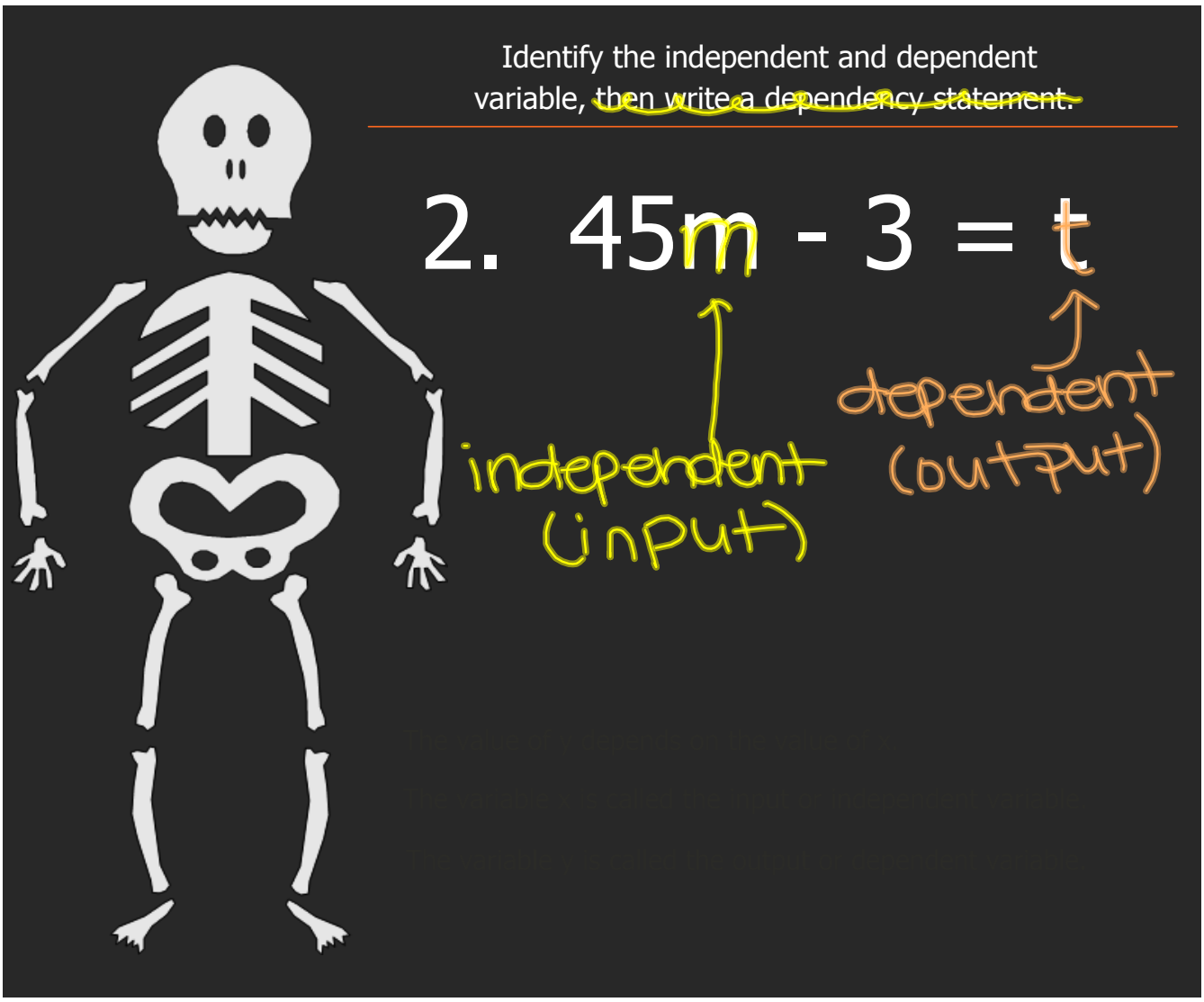
1. $y = 2x + 1$

output ↑ ↑ input

The value of y depends on the value of x.

x - independent variable

y - dependent


Identify the independent and dependent variable, then write a dependency statement.
2. 45m - 3 = t
independent (input)
dependent (output)

Other words for cause/effect

Cause	Effect
independent	dependent
input (x)	output (y)
If..	Then..

You may cut & glue, or just write the effect

CAUSE	EFFECT
Weather	Type of Clothes Worn
Age	Height
Number of Minutes You Walk	Calories Burned
Number of Hours Worked	Money Earned
Study Hours	Grade in Course
The Length of Song	Time to download
Number of Pizzas	How much you pay
Passing Classes	Graduating in 4 years
Numbers of Penalties and Injuries	Stoppage Time

Algebra I - Unit 3: Topic 1 – Identifying Independent and Dependent

Practice – Identifying Independent and Dependent **p 246**

Name _____ Date _____ Period _____

Determine the independent and dependent variables in the given situations.

1. How much time I spend on the phone effects how much studying I get done.
   a. Independent Variable:
   b. Dependent Variable:

2. The number of books I read over the summer depends on how much time I spend at the pool.
   a. Independent Variable:
   b. Dependent Variable:

3. Sales tax in the state of Maryland is 5% of the purchase price.
   a. Independent Variable:
   b. Dependent Variable:

4. The fire was very big so many firefighters were there.
   a. Independent Variable:
   b. Dependent Variable:

5. To rent a DVD, a customer must pay $3.99 plus $0.99 for every day that it is late.
   a. Independent Variable:
   b. Dependent Variable:

6. In the winter, more electricity is used when the temperature goes down, and less is used when the temperature rises.
   a. Independent Variable:
   b. Dependent Variable:

7. The height of a candle decreases d centimeters for every hour it burns.
   a. Independent Variable:
   b. Dependent Variable:

Algebra I - Unit 3: Topic 1 – Identifying Independent and Dependent

Determine the independent and dependent variables in the given situations.

8. $\frac{3}{4}x - 5 = y$

   a. Independent Variable:

   b. Dependent Variable:

9. $V = \frac{4}{3}\pi r^3$

   a. Independent Variable:

   b. Dependent Variable:

10. During a sale at a shoe store, all shoes were 25% off the original price. Which statement best describes the functional relationship between the sale price of a pair of shoes and the original price?

    A The sale price is dependent on the original price
    B The original price is dependent on the sale price
    C The sale price and the original price are independent of each other
    D The sale price is dependent on the number of pairs of shoes purchased.

Consider these two variables. Identify them as either independent or dependent. Then complete the sentences.

11. The number of hours I study _____ My grade point average _____

    _____ depends on _____

    _____ is a function of _____

    _____ determines _____


HAPPY
BIRTHDAY
KRIZIA!