Questions on lesson 1.1?

We will be taking our content mastery quiz soon!

Content Mastery

Quiz: lesson 1.1

Feb 27-8:47 AM

1.2 Attack of the Clones
Translating and Constructing Line Segments

PAGE 18 OF STUDENT TEXT

Don, Freda, and Bert live in a town where the streets are laid out in a grid system.

1. Don lives 3 blocks east of Descartes Avenue and 5 blocks north of Elm Street. Freda lives 7 blocks east of Descartes Avenue and 2 blocks north of Elm Street. Plot points to show the locations of Don's house and Freda's house on the coordinate plane. Label each location with the student's name and the coordinates of the point.

④ 5-2

⑤ 7-3

⑥ 3+4+x

3+4+5= 12 total blocks

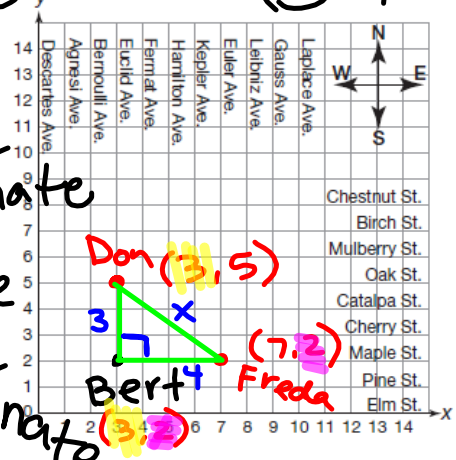
$3^2+4^2=x^2$

$\sqrt{25}=\sqrt{x^2}$

$x=5$

③ D & B have the same x-coordinate

B & F have the same y-coordinate.



a. Name the intersection of streets that Don lives on.

Euclid Ave & Oak St.

b. Name the intersection of streets that Freda lives on.

Euler Ave & Maple St.

2. Bert lives at the intersection of the avenue that Don lives on, and the street that Freda lives on. Plot and label the location of Bert's house on the coordinate plane. Describe the location of Bert's house with respect to Descartes Avenue and Elm Street.

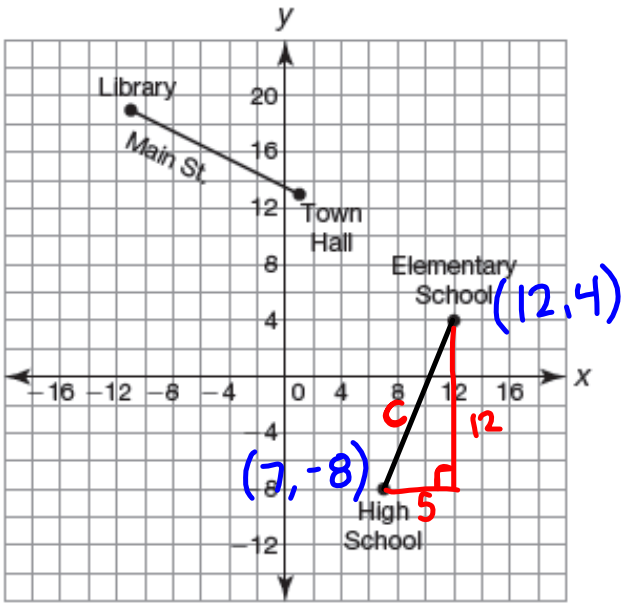
Euclid Ave & Maple St.

3 blocks east of Decartes Ave & 2 blocks north of Elm St.

**Take 7 minutes to work on #3-8 on pgs. 18-20

NOT IN YOUR BOOK

Use the map of Smalltown to answer each question. One mile is equal to 6 units on the map.



1. After school today, Mica must walk from the high school to the elementary school to pick up his younger brother.

   a. Determine the distance between the high school and the elementary school.

$a^2+b^2=c^2$

$5^2+12^2=c^2$

$25+144=c^2$

$\sqrt{169}=\sqrt{c^2}$

$13=c$

blocks

$\frac{13 \text{ units}}{1} \cdot \frac{1 \text{ mi}}{6 \text{ units}}$

$\frac{13}{6}$ mi = $2\frac{1}{6}$ mi

   b. How many miles must Mica walk to pick up his younger brother?

$2\frac{1}{6}$ mi

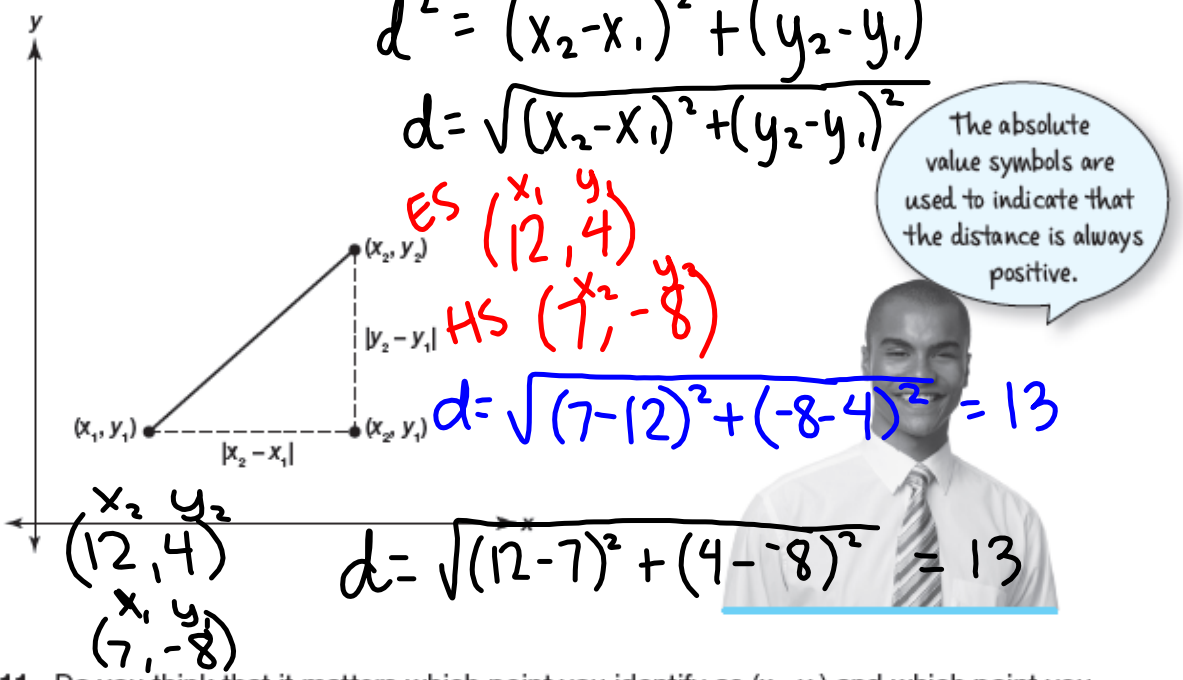
PAGE 21 IN BOOK

You used the Pythagorean Theorem to calculate the distance between two points on the coordinate plane. Your method can be written as the *Distance Formula.*

The **Distance Formula** states that if (x_1, y_1) and (x_2, y_2) are two points on the coordinate plane, then the distance d between (x_1, y_1) and (x_2, y_2) is $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$.

$$d^2 = (x_2 - x_1)^2 + (y_2 - y_1)^2$$

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$



ES (x_1, y_1) $(12, 4)$

HS (x_2, y_2) $(7, -8)$

$d = \sqrt{(7-12)^2 + (-8-4)^2} = 13$

(x_2, y_2) $(12, 4)$

(x_1, y_1) $(7, -8)$

$d = \sqrt{(12-7)^2 + (4-(-8))^2} = 13$

11. Do you think that it matters which point you identify as (x_1, y_1) and which point you identify as (x_2, y_2) when you use the Distance Formula? Use an example to justify your answer.

No, when we square the differences, it is the same.

$(-10)^2 = (10)^2$

PAGE 25 OF STUDENT TEXT

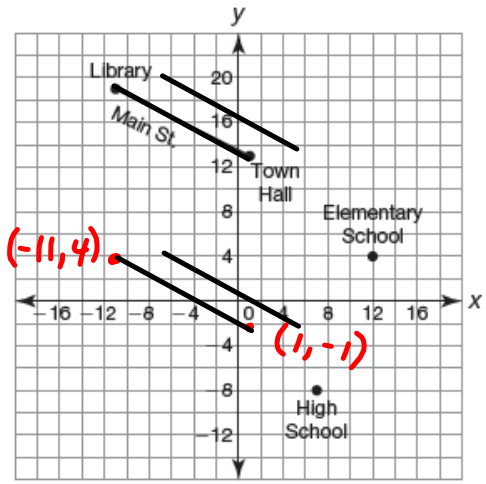
A **transformation** is the mapping, or movement, of all the points of a figure in a plane according to a common operation.

A **rigid motion** is a transformation of points in space.

A **translation** is a rigid motion that "slides" each point of a figure the same distance and direction. Sliding a figure left or right is a horizontal translation, and sliding it up or down is a vertical translation.

The original figure is called the **pre-image**. The new figure created from the translation is called the **image**.

NOT IN YOUR BOOK, COPY INTO YOUR NOTES



2. The coordinates for the points that mark the locations of the grocery store and the post office can be determined by translating Main Street vertically 15 units down. The grocery store is located directly south of the town hall.

   a. What are the coordinates of the points that mark the location of the grocery store and the post office? Explain how you determined your answers. Then, plot the points on the coordinate plane.

   Moved endpoints down 15 units.

   b. What must be true about the road between the post office and grocery store and Main Street? Explain how you determined your answer. Then, use mathematics to verify your answer.

   It's parallel to Main St.

3. The town would like to construct a park that is one mile from the town hall. Use your compass to show all possible locations for the new park. Explain how you determined your answer.

**You work on Problem #2 in your book, pages 24-26

PROBLEM 3 Copying Line Segments

In the previous problem, you translated line segments on the coordinate plane. The lengths of the line segments on the coordinate plane are measurable.

In this problem, you will translate line segments when measuring is not possible. This basic geometric construction is called **copying a line segment** or **duplicating a line segment.** You will perform the construction using a compass and a straightedge.

One method for copying a line segment is to use circles. But before you can get to that, let's review how to draw perfect circles with a compass.

Remember that a compass is an instrument used to draw circles and arcs. A compass can have two legs connected at one end.

One leg has a point, and the other holds a pencil. Some newer compasses may be different, but all of them are made to construct circles by placing a point firmly into the paper and then spinning the top of the compass around, with the pencil point just touching the paper.

Individual Reflection

Homework

Finish lesson 1.2 * You can skip pgp. 27-34