

4-6 - Geometry Scot Foresman Integrated Math

Agenda

Objective: SWBAT...

- **Define vector** and **examine its properties**
- **Use** a vector to **translate** figures

1) Do Now - Investigation with Vectors Warm Up

Coordinate plane

2) Notes

Vocabulary, Notation,

3) Constructing Translation with Vectors

Question 1-2 Worksheet - step by step with vectors

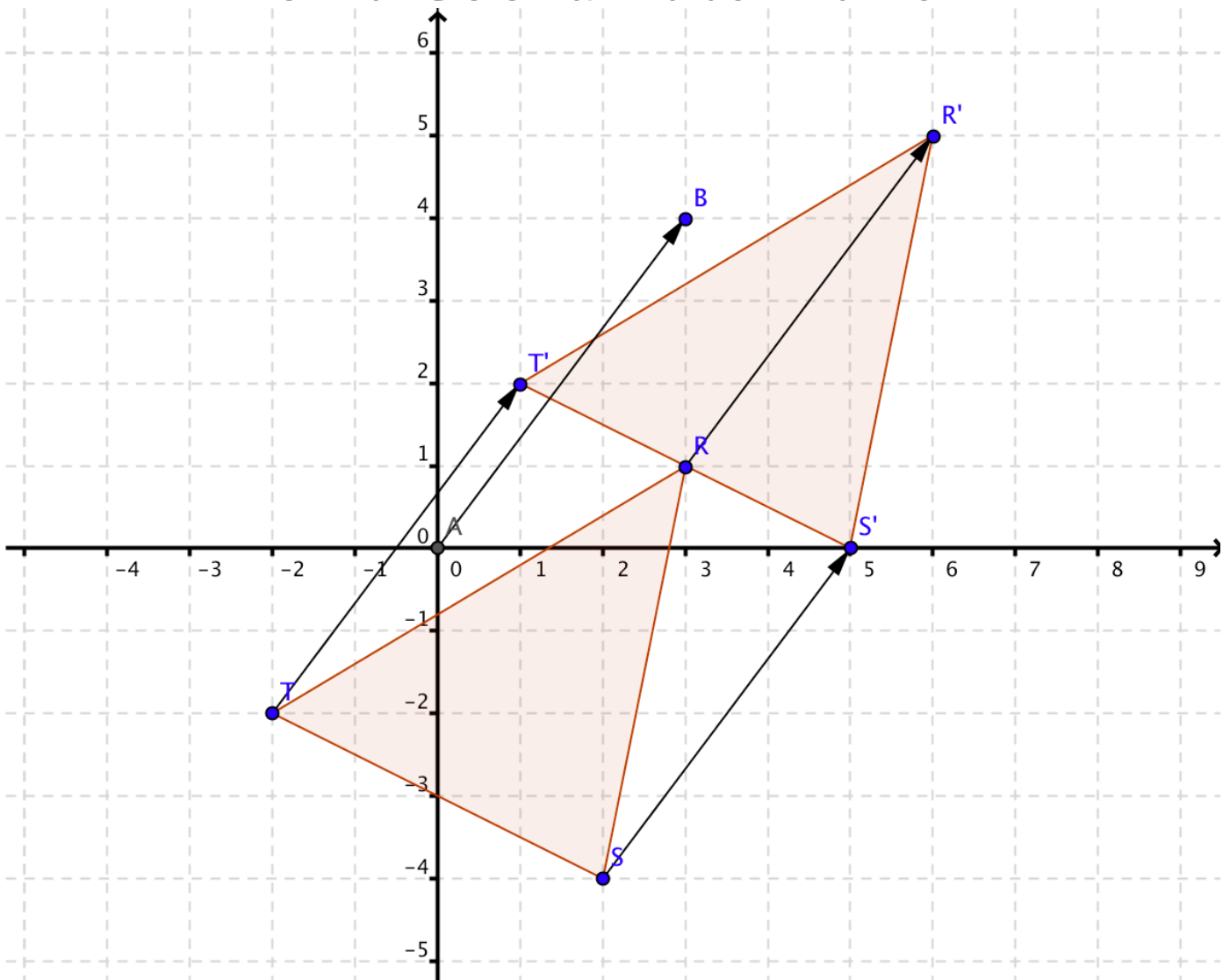
4) Practice Worksheet

Lesson Master 4-6 A

HW: NONE- (Passover)

Investigation with Vectors Warm Up

...on a Coordinate Plane...



Vectors

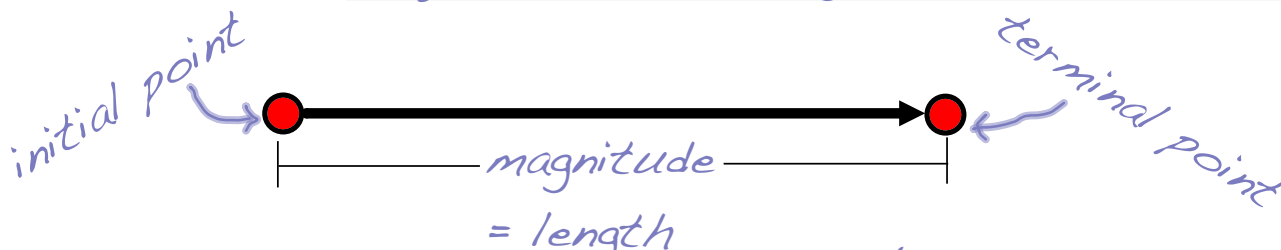
What is a vector? a quantity with magnitude and direction

How is a vector used to **translate** a figure? by drawing parallel vectors with the same magnitude at each preimage point, you are translating. Follow these steps.

- 1) Lightly draw a line containing the preimage point and the initial point of the vector (this is your 0° line)
- 2) Measure the acute angle formed by the 0° line (from step 1) and your vector
- 3) Draw a ray from your preimage point that creates an angle with the same measure you found in step 2
- 4) Measure the length of your vector and duplicate that vector at your preimage point on the ray you drew in step 3.
- 5) The terminal point of your duplicated vector is your image point. Plot and label it.
- 6) Repeat steps 1 - 5 for all remaining points in your figure

Vectors

What is a vector? a quantity with magnitude and direction

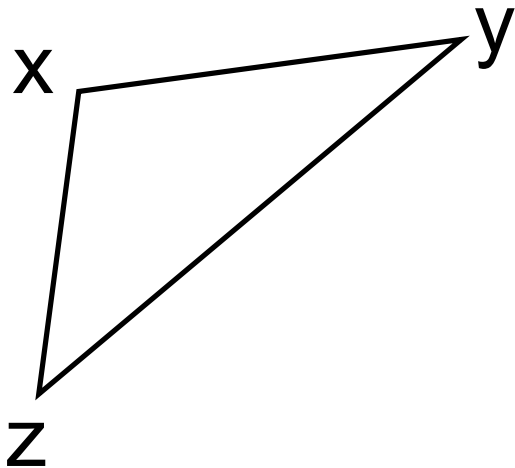


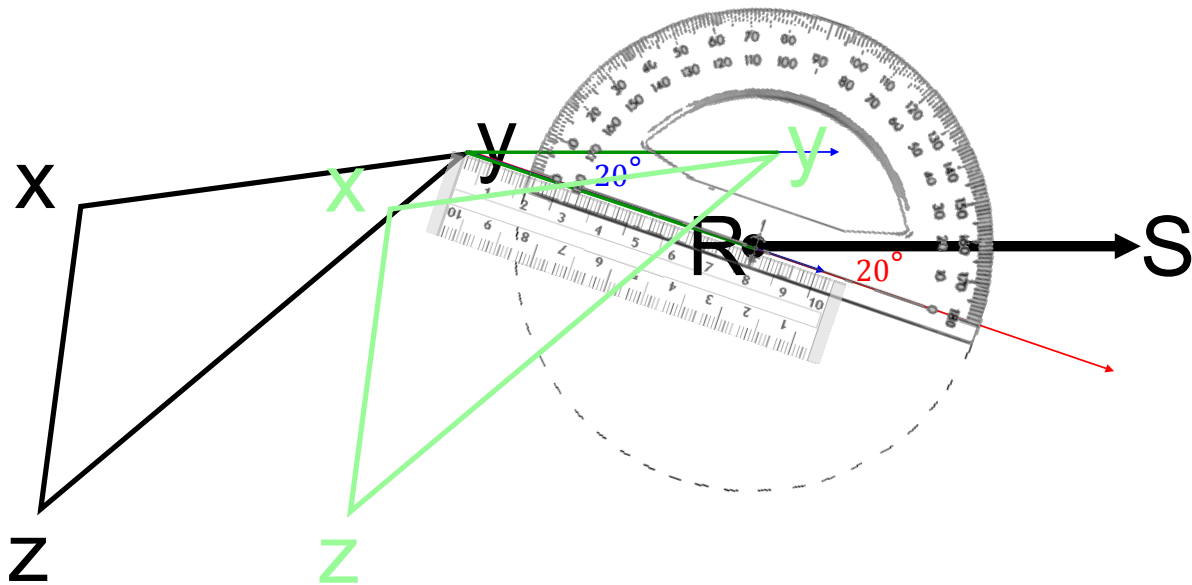
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Questions 1-2

Translate $\triangle XYZ$ using vector \overrightarrow{RS}

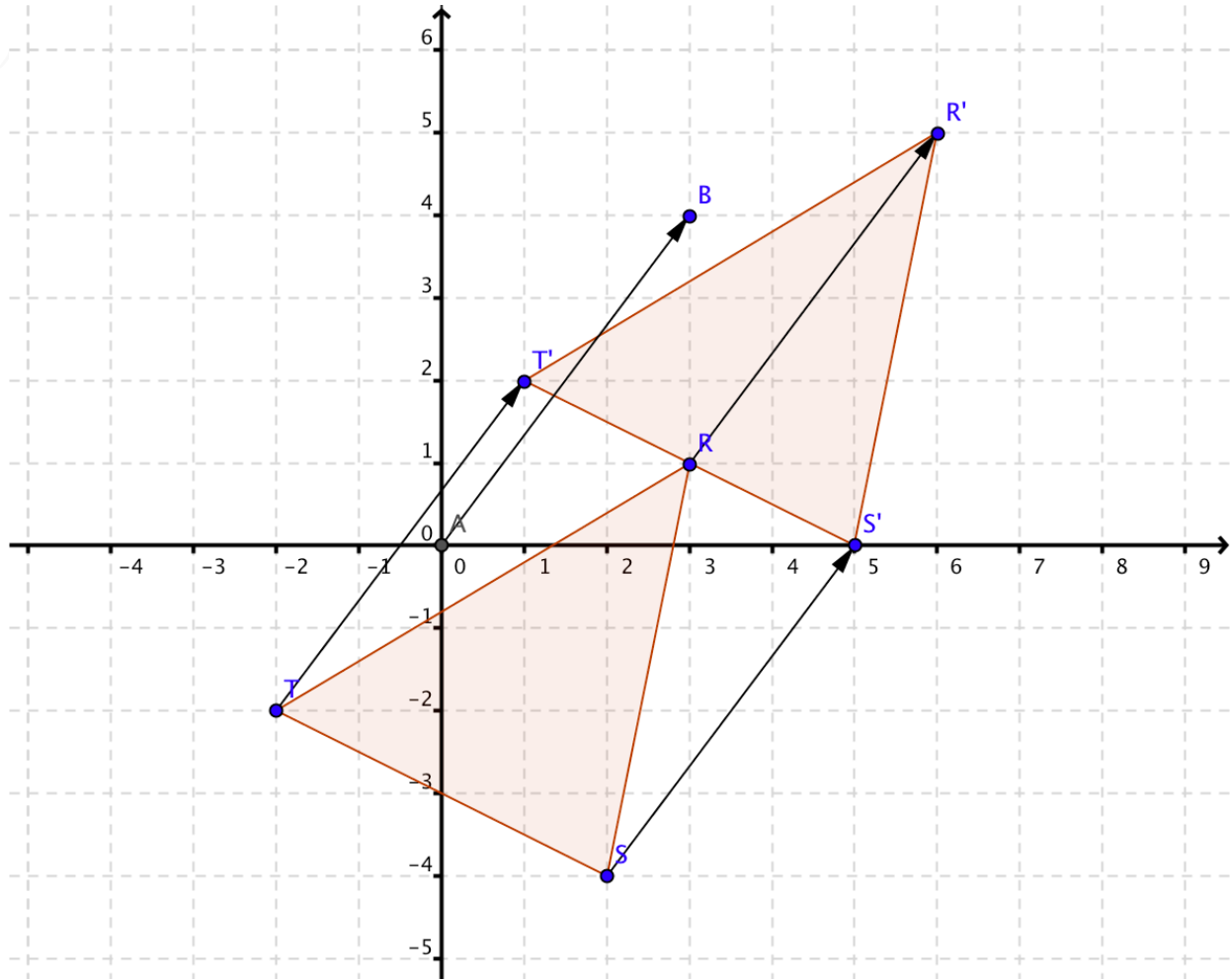


Questions 1-2Translate $\triangle XYZ$ using vector \overrightarrow{RS} 

How do I do a vector translation on a Cartesian coordinate plane?

given a vector (h, k) add h to each x coordinate and k to each y coordinate.

The magnitude of your translation will be the length of vector (h, k)

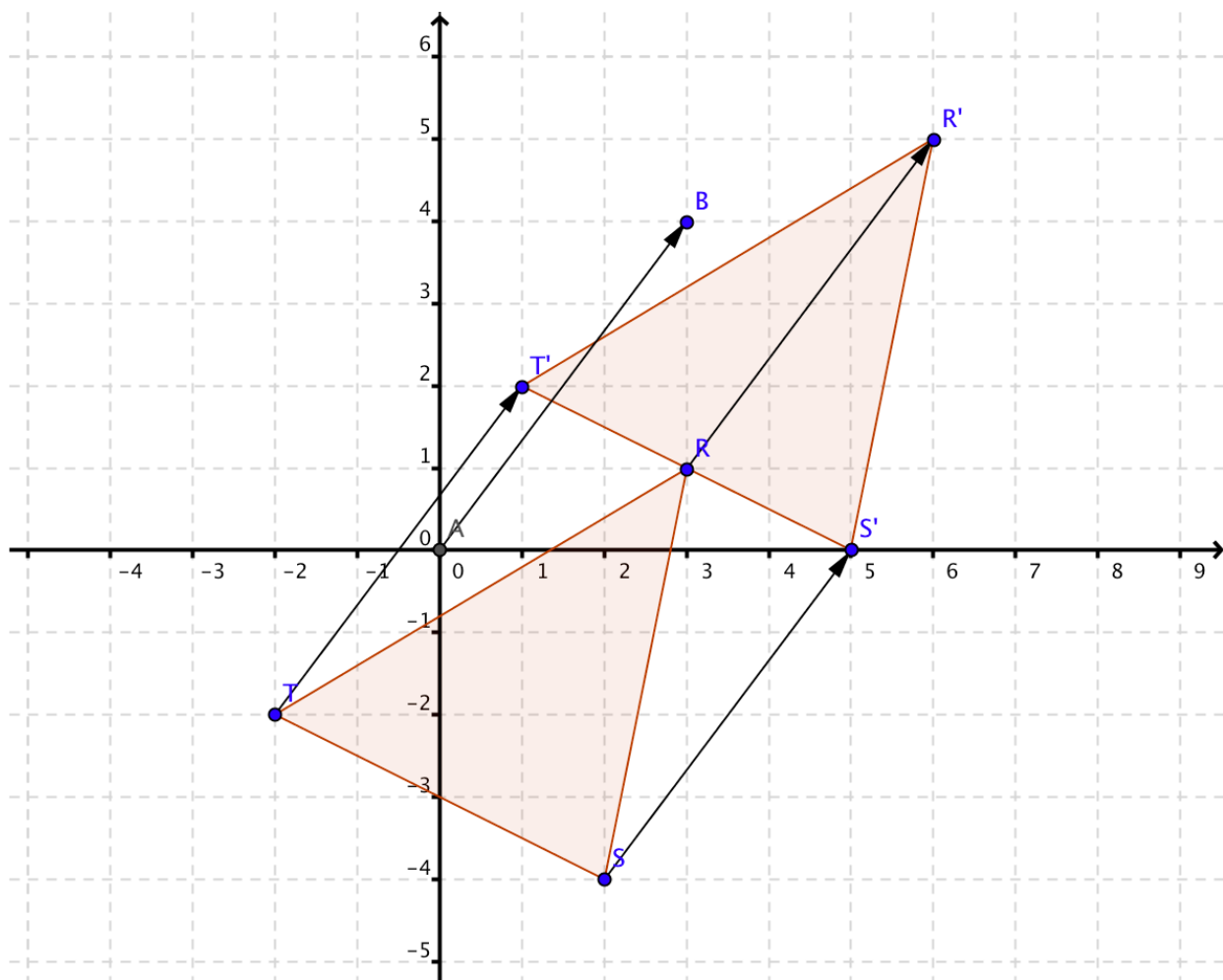


What is the **notation** for this? $(x, y) \rightarrow (x+h, y+k)$

How do I do a vector translation on a Cartesian coordinate plane? given a vector (h, k) add h to each x coordinate and k to each y coordinate.

The magnitude of your translation will be the length of vector (h, k)

Notice vector AB !



What is the **notation** for this? $(x, y) \rightarrow (x+h, y+k)$

Name _____

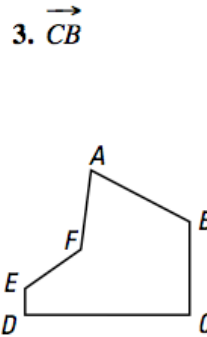
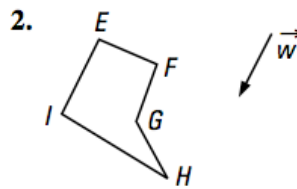
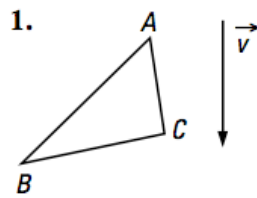
**LESSON
MASTER**

**4-6
A**

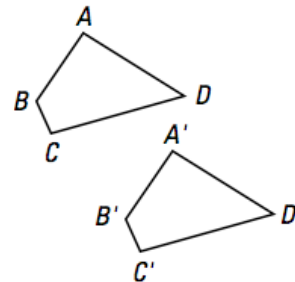
Questions on SPUR Objectives
See pages 238–241 for objectives.

Skills Objective C

In 1–3, draw and label the translation image of the figure determined by the indicated vector.



4. Draw and name a vector for the translation that maps $ABCD$ onto $A'B'C'D'$.



Representations Objective K

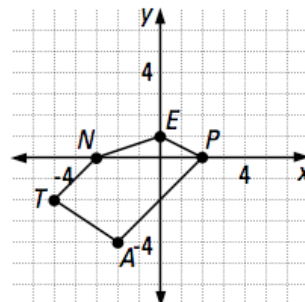
In 5 and 6, use the vector described by the ordered pair $(-7, -10)$.

5. Name its **a.** horizontal component. _____ **b.** vertical component. _____

6. Find the image of the given point under translation by this vector. **a.** $(-3, 10)$ _____ **b.** (p, q) _____

7. The image of point A under translation by the vector $(-17, 33)$ is $(-30, 29)$. What are the coordinates of A ? _____

8. Draw the image of $PENTA$ under the translation with vector $(3, -1)$.



Name _____

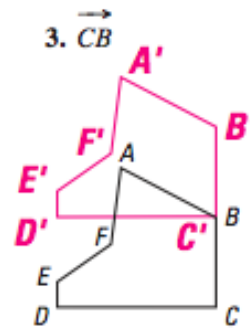
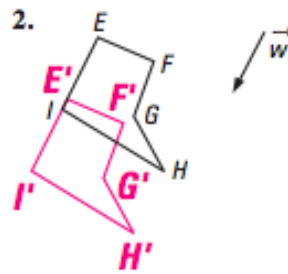
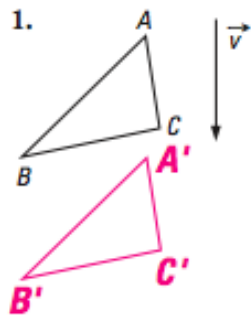
LESSON MASTER

4-6
A

Questions on SPUR Objectives
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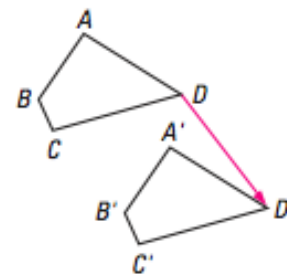
Skills Objective C

In 1–3, draw and label the translation image of the figure determined by the indicated vector.



4. Draw and name a vector for the translation that maps $ABCD$ onto $A'B'C'D'$.

Sample: $\vec{DD'}$



Representations Objective K

In 5 and 6, use the vector described by the ordered pair $(-7, -10)$.

5. Name its a. horizontal component, -7 b. vertical component, -10

6. Find the image of the given point under translation by this vector. a. $(-3, 10)$ $(-10, 0)$ b. (p, q) $(p - 7, q - 10)$

7. The image of point A under translation by the vector $(-17, 33)$ is $(-30, 29)$. What are the coordinates of A ? $(-13, -4)$

8. Draw the image of $PENTA$ under the translation with vector $(3, -1)$.

