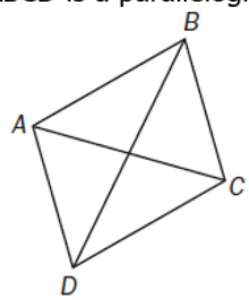
Friday 3/6/2020

1. Grab Notes & Calc.
2. Put your phones/earbuds away
3. Finish Dilation Notes from yesterday.
4. 2B Quiz discussion, 2A Test discussion (if time allows)
5. Dilation Practice (finish for HW)

Jul 31-9:37 PM

Warm-Up:

16) What proves that figure ABCD is a parallelogram?



A. Diagonal BD bisects angle ABC.

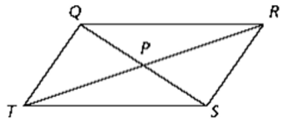
B. Side AB is equal to diagonal AC.

C. Diagonal BD bisects diagonal AC.

D. Diagonal BD is greater than diagonal AC.

Feb 27-2:32 PM

17) Which of the following would be enough information to prove that quadrilateral QRST is a parallelogram?



A. $\overline{QR} \cong \overline{ST}$

B. $\overline{QR} \parallel \overline{ST}$

C. $\overline{QP} \cong \overline{PS}$ and $\overline{TP} \cong \overline{PR}$

D. Two pairs of sides are congruent.

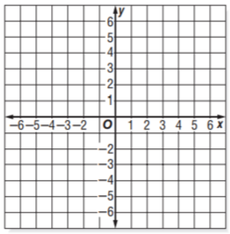
18) Quadrilateral RSTU has vertices R(-6, -3), S(3, 3), and T(4, -1). What are the coordinates of vertex U if RSTU is a parallelogram?

A. (-5, -6)

B. (-5, -7)

C. (-6, -7)

D. (-6, 3)



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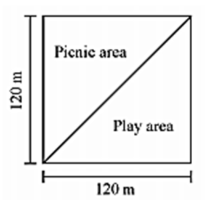
19) A community is building a square park with sides that measure 120 meters. To separate the picnic area from the play area, the park is split by a diagonal line from opposite corners. Determine the approximate length of the diagonal line that splits the square. If necessary, round your answer to the nearest meter.



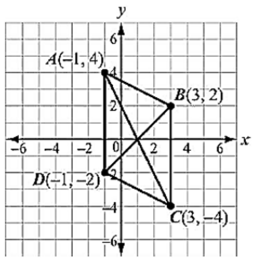
A. 28,800 meters

B. 170 meters

C. 240 meters

D. 120 meters

20) Parallelogram ABCD has vertices as shown.



Which equation would be used in proving that the diagonals of parallelogram ABCD bisect each other?

A. $\sqrt{(3-1)^2+(2-0)^2} = \sqrt{(1-3)^2+(0+4)^2}$

B. $\sqrt{(3+1)^2+(2+0)^2} = \sqrt{(1+3)^2+(0+4)^2}$

C. $\sqrt{(-1-1)^2+(4-0)^2} = \sqrt{(1-3)^2+(0+4)^2}$

D. $\sqrt{(-1+1)^2+(4+0)^2} = \sqrt{(1+3)^2+(0-4)^2}$

What am I learning today?

Learning Objective 2C.2

How to dilate a figure using a scale factor.

Jul 31-6:18 PM

What will I do to show that I have learned it?

I can...Use a scale factor and a center of dilation by multiplying the pre-image to create similar figures.

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- **Dilation** – A **transformation** that changes the SIZE of a figure.
- Dilations can result in a BIGGER or SMALLER figure than the pre-image.
- ***Since dilations **do not** maintain the same distance/length between the points from the pre-image to the image, a dilation is **NOT** an ISOMETRY.***

4 qualities preserved during a dilation transformation:

✓ ANGLE measures

✓ Corresponding sides are PROPORTIONAL

✓ Pre-image and image coordinates are COLINEAR (on the same line) from the center of dilation

Sep 5-7:54 AM

- Dilations need **two** things:

1. SCALE FACTOR --> $\frac{\text{new}}{\text{old}}$ $\frac{A'}{A}$

2. Center of Dilation

(0,0)

We often use the ORIGIN for the center of dilation; when this happens simply **multiply the scale factor with the COORDINATES of each vertex**

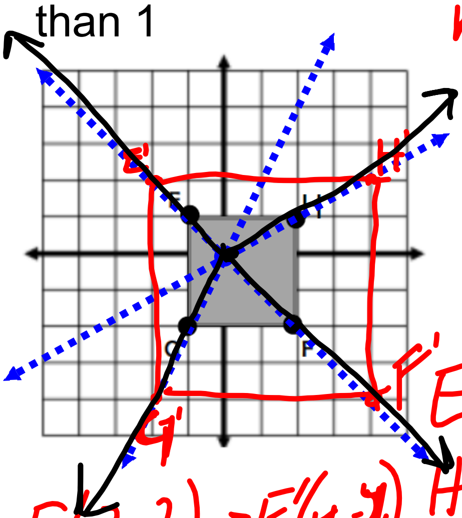
k = Scale factor

$(x, y) \longrightarrow (kx, ky)$

Sep 5-8:06 AM

- An image that is **bigger** than the pre-image is called an **ENLARGEMENT**
- This means the **scale factor** was **MORE** than 1

$k>1$ ex: $3, \frac{3}{2}, 20$



Find the image E'H'F'G' after a dilation centered at the origin with a scale factor of 2

$E(-1,1) \xrightarrow{\times 2} E'(-2,2)$

$H(2,1) \xrightarrow{\times 2} H'(4,2)$

$F(2,-2) \rightarrow F'(4,-4)$

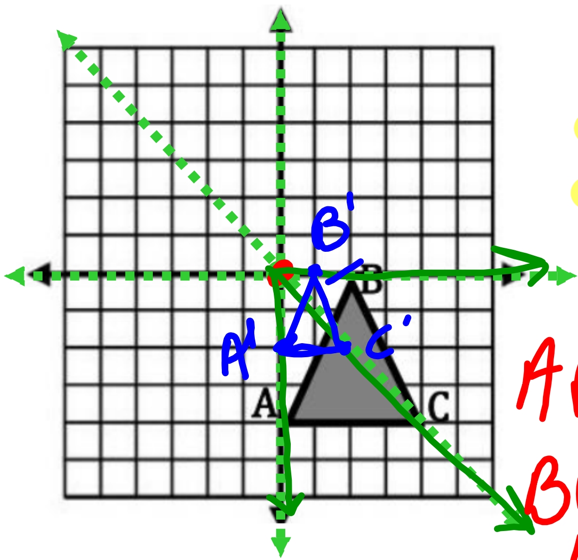
$G(1,-2) \rightarrow G'(-2,-4)$

Sep 5-8:06 AM

- An image that is **smaller** than the pre-image is called an **REDUCTION**
- This means the **scale factor** was **LESS** than 1

ex: $\frac{1}{2}, \frac{1}{3}, \frac{2}{5}$

$k<1$



Find the image A'B'C' after a dilation centered at the origin with a scale factor of 1/2

$A(0,-4) \rightarrow A'(0,-2)$

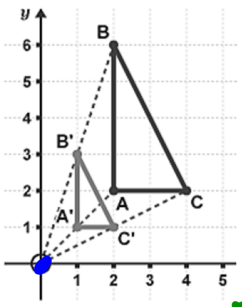
$B(2,0) \rightarrow B'(1,0)$

$C(4,-4) \rightarrow C'(2,-2)$

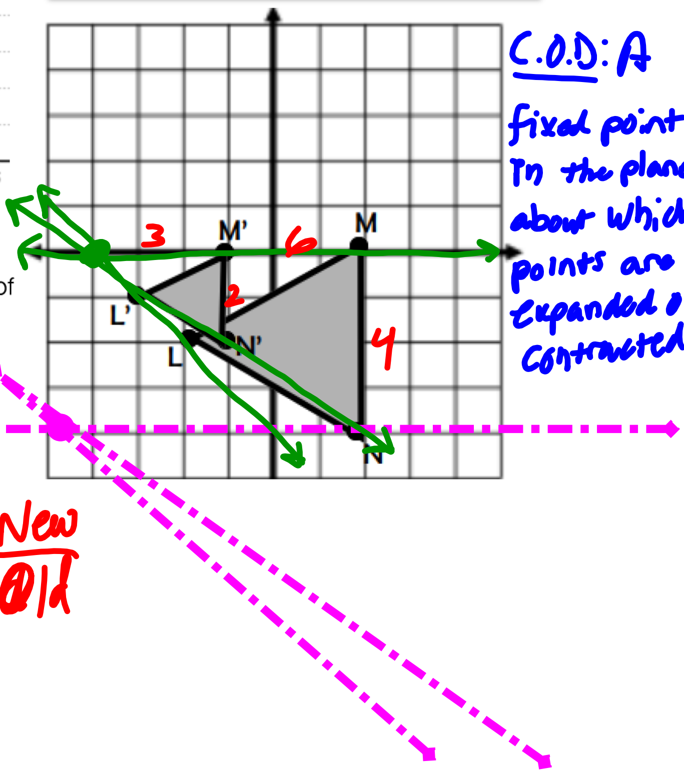
Sep 5-8:07 AM

- An image that is **the same size** as the pre-image is called a CONGRUENCE
- This means the **scale factor** was EQUAL to 1.

$k = 1$



Connect the corresponding vertices with lines and find the intersection point!



C.O.D: A fixed point in the plane about which points are expanded or contracted

1. Find the center of dilation.

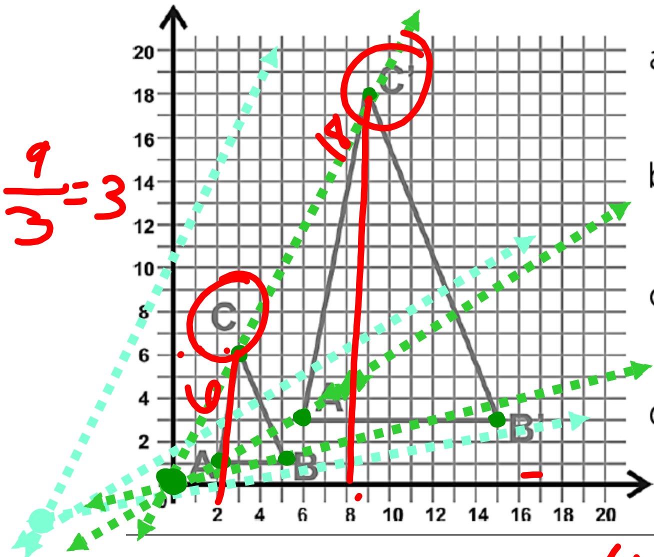
   (-4,0)

2. Calculate the scale factor.

   $\frac{3}{6} = \boxed{\frac{1}{2}}$

   $\frac{\text{New}}{\text{Old}}$

Sep 5-8:07 AM



$\frac{9}{3} = 3$

a. Find the center of dilation.

   (0,0)

b. Calculate the scale factor.

   $\frac{18}{6} = \boxed{3}$ $3 > 1$

c. Describe the type of dilation.

   Enlargement

d. Create a rule for the dilation.

   $(x,y) \longrightarrow (3x,3y)$

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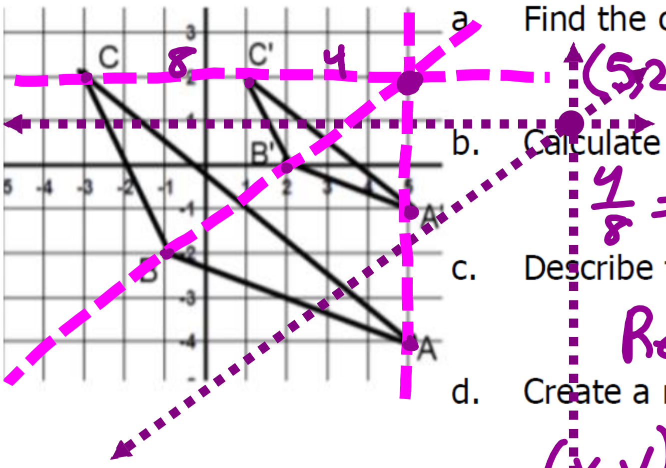


a. Find the center of dilation.

(5,2)

b. Calculate the scale factor.

$\frac{4}{8} = \boxed{\frac{1}{2}}$ $\frac{1}{2} < 1$ ✓

c. Describe the type of dilation.

Reduction

d. Create a rule for the dilation.

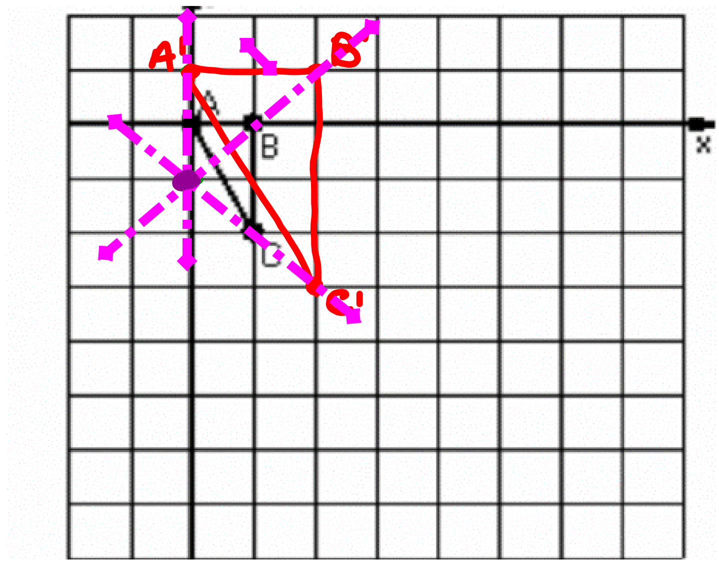
$(x, y) \longrightarrow (\frac{1}{2}x, \frac{1}{2}y)$

Feb 28-3:52 PM

3. Graph the image using the dilation and center of dilation.

~~B~~ 2 > 1

Dilation = 2, center D(0, -1)



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4. Complete the coordinates of the image after a dilation of scale factor *k* centered at the origin.

A(1, 1) B(3, 1) and C(-2, -3);

k = 3 $3>1 \rightarrow$ enlargement

$A(1,1) \xrightarrow{\times 3} A'(3,3)$

$B(3,1) \xrightarrow{\times 3} B'(9,3)$

$C(-2,-3) \xrightarrow{\times 3} C'(-6,-9)$

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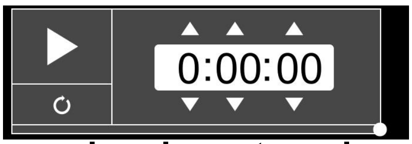
<u>Classwork</u>:



Complete the classwork about using dilations.

<u>HW</u>: Complete the packet

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