

# Congruence, Construction, and Proof 6.4

## Ready, Set, Go!



©2012 www.flickr.com/photos/suendercafe

### Ready

Topic: Defining geometric shapes and components

For each of the geometric words below write a definition of the object that addresses the essential elements. Also, list necessary attributes and characteristics.

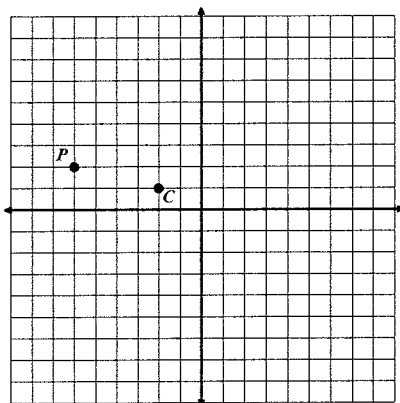
1. Quadrilateral:
2. Parallelogram:
3. Rectangle:
4. Square:
5. Rhombus:
6. Trapezoid:

### Set

Topic: Reflections and Rotations, composing reflections to create a rotation

Perform the indicated rotations.

7.



Use the center of rotation point  $C$  and rotate point  $P$  clockwise around it  $90^\circ$ . Label the image  $P'$ .

With point  $C$  as a center of rotation also rotate point  $P$   $180^\circ$ . Label this image  $P''$ .

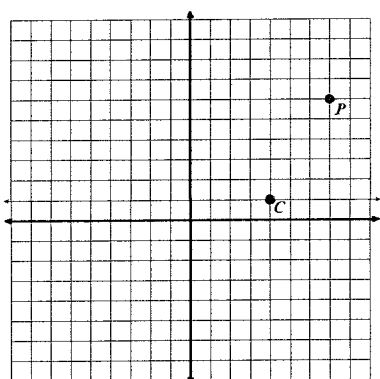
© 2012 Mathematics Vision Project | MVP

In partnership with the Utah State Office of Education

Licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported license.

# Congruence, Construction, and Proof 6.4

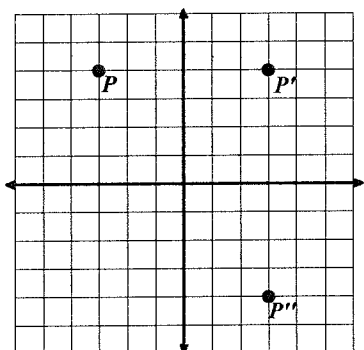
8.



Use the center of rotation point  $C$  and rotate point  $P$  clockwise around it  $90^\circ$ . Label the image  $P'$ .

With point  $C$  as a center of rotation also rotate point  $P$   $180^\circ$ . Label this image  $P''$ .

9.

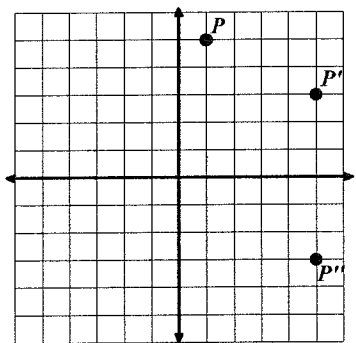


a. What is the equation for the line for reflection that reflects point  $P$  onto  $P'$ ?

b. What is the equation for the line of reflections that reflects point  $P'$  onto  $P''$ ?

c. Could  $P''$  also be considered a rotation of point  $P$ ? If so what is the center of rotation and how many degrees was point  $P$  rotated?

10.

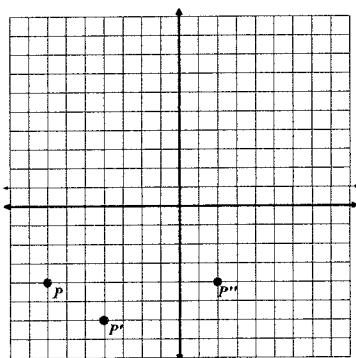


a. What is the equation for the line for reflection that reflects point  $P$  onto  $P'$ ?

b. What is the equation for the line of reflections that reflects point  $P'$  onto  $P''$ ?

c. Could  $P''$  also be considered a rotation of point  $P$ ? If so what is the center of rotation and how many degrees was point  $P$  rotated?

11.



a. What is the equation for the line for reflection that reflects point  $P$  onto  $P'$ ?

b. What is the equation for the line of reflections that reflects point  $P'$  onto  $P''$ ?

c. Could  $P''$  also be considered a rotation of point  $P$ ? If so what is the center of rotation and how many degrees was point  $P$  rotated?

© 2012 Mathematics Vision Project | MVP

In partnership with the Utah State Office of Education

Licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported license.

# Congruence, Construction, and Proof | 6.4

## Go

Topic: Rotations about the origin

**Plot the given coordinate and then perform the indicated rotation in a clockwise direction around the origin, the point  $(0, 0)$ , and plot the image created. State the coordinates of the image.**

12. Point  $A$   $(4, 2)$  rotate  $180^\circ$

Coordinates for Point  $A'$   $(\_, \_)$

13. Point  $B$   $(-5, -3)$  rotate  $90^\circ$  clockwise

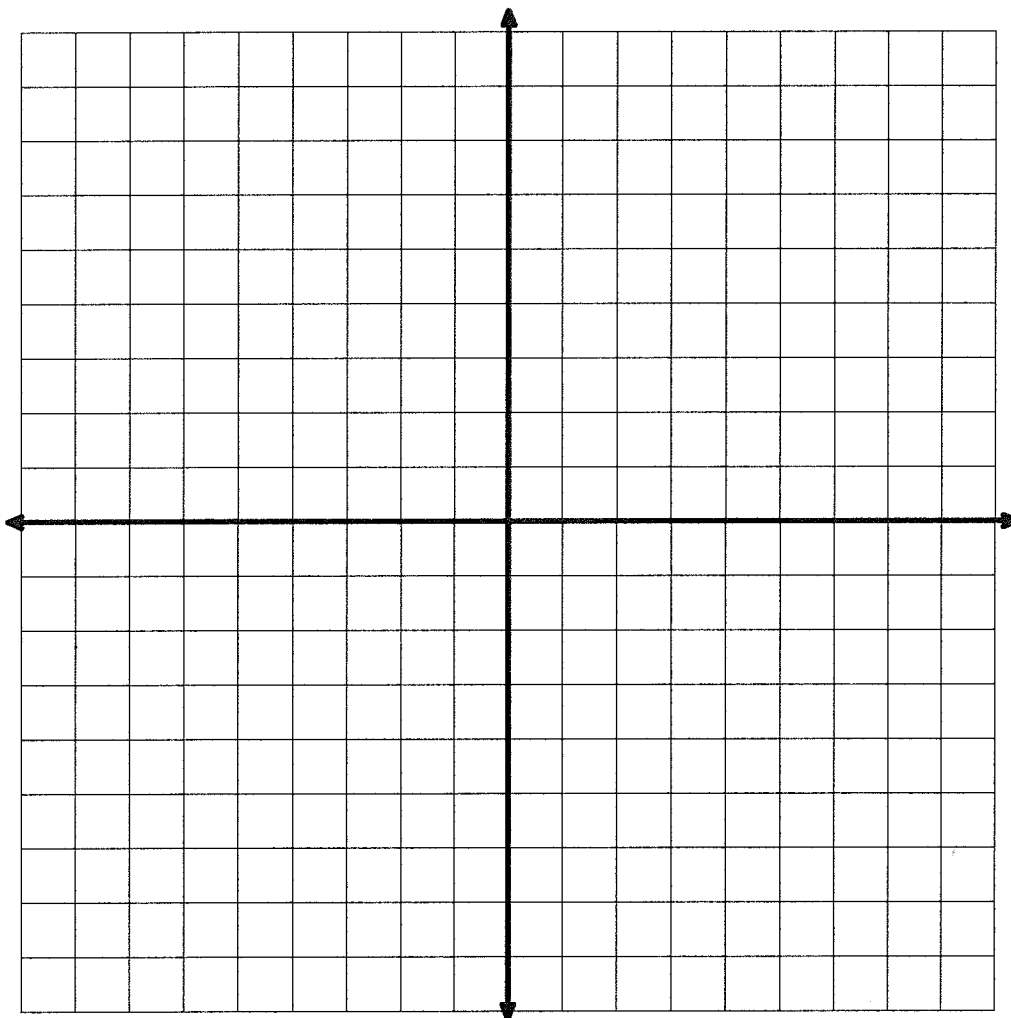
Coordinates for Point  $B'$   $(\_, \_)$

14. Point  $C$   $(-7, 3)$  rotate  $180^\circ$

Coordinates for Point  $C'$   $(\_, \_)$

15. Point  $D$   $(1, -6)$  rotate  $90^\circ$  clockwise

Coordinates for Point  $D'$   $(\_, \_)$



© 2012 Mathematics Vision Project | MVP

In partnership with the Utah State Office of Education

Licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported license.