

# Unit 11: Geometry

## Quiz (Lessons 13–16) — AB

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. a) Predict the result of combining two translations:

P to P': 5 units left and 3 units up

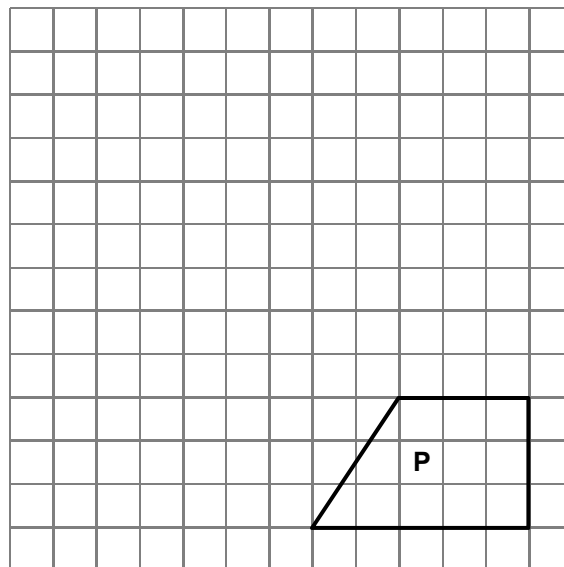
P' to P\*: 2 units right and 4 units up

P to P\*: \_\_\_\_\_ units \_\_\_\_\_ and  
\_\_\_\_\_ units \_\_\_\_\_

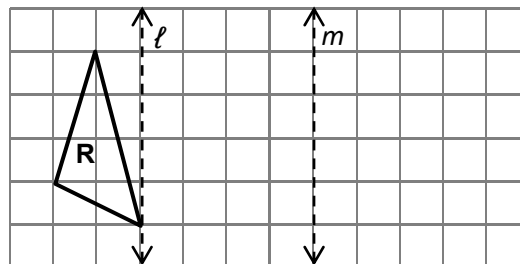
- b) Translate P to P' and P' to P\* to check your prediction. Was your prediction correct?

\_\_\_\_\_

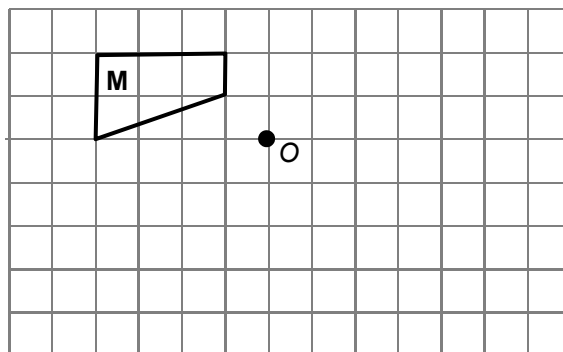
**BONUS ►** Draw a shape congruent to P that is not a translation of P. Explain how you know it is not a translation of P.



2. a) Reflect triangle R in line  $\ell$ . Label the image R'.  
b) Reflect triangle R' in line  $m$ . Label the image R\*.  
c) Is there a reflection or a translation that takes R to R\*? If yes, describe it.



3. a) Rotate polygon M 180° clockwise around point O. Label the image M'.  
b) Rotate polygon M' 90° clockwise around point O. Label the image M\*.  
c) Which rotation around point O takes polygon M to polygon M\*?



# Unit 11: Geometry

## Quiz (Lessons 13–16) — AB

1. a) 3, left  
7, up  
b) Teacher to check.

### BONUS

Teacher to check  
drawing.  
Sample explanation:  
Translated shapes  
point the same way.  
The new shape does  
not point the same  
way as P.

2. a) Teacher to check.  
b) Teacher to check.  
c) Translation 8 units  
right.
3. a) Teacher to check.  
b) Teacher to check.  
c)  $270^\circ$  CW or  
 $90^\circ$  CCW

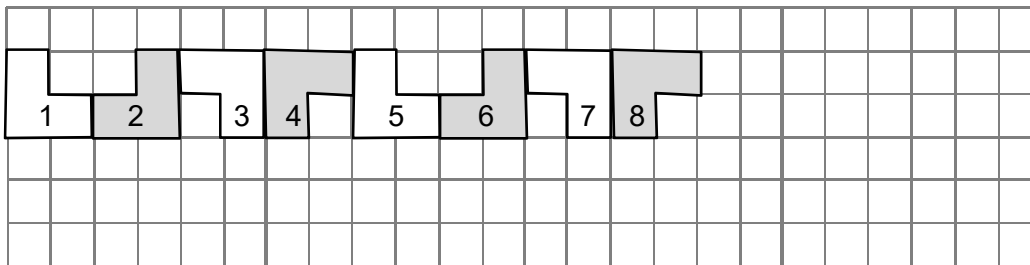
# Unit 11: Geometry

## Quiz (Lessons 17–20) — AB

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. a) Continue the pattern.



- b) This pattern is made by repeating the same type of transformation. Identify the transformation used. Draw the mirror line, the translation arrows, or centres of rotation between each polygon and the next.

**BONUS ►** Describe a different way to create the same pattern. Use a different transformation or combination of transformations to get from each polygon to the next.

5 to 6:

6 to 7:

2. a) Reflect triangle  $DEF$  in the given line. Write the coordinates of the vertices before and after the reflection.

$D$  ( \_\_\_\_\_, \_\_\_\_\_ )  $\rightarrow$   $D'$  ( \_\_\_\_\_, \_\_\_\_\_ )

$E$  ( \_\_\_\_\_, \_\_\_\_\_ )  $\rightarrow$   $E'$  ( \_\_\_\_\_, \_\_\_\_\_ )

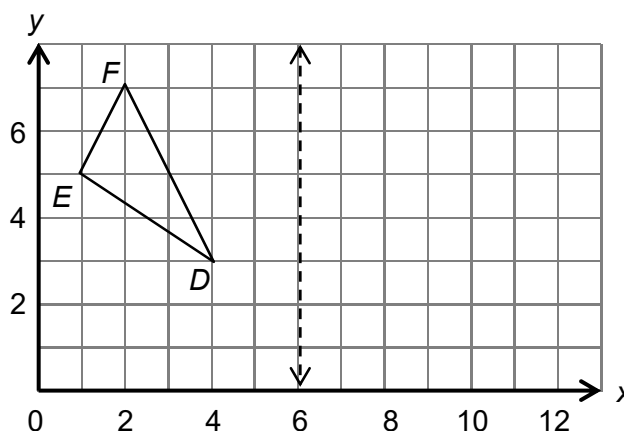
$F$  ( \_\_\_\_\_, \_\_\_\_\_ )  $\rightarrow$   $F'$  ( \_\_\_\_\_, \_\_\_\_\_ )

- b) Rotate the triangle  $D'E'F'$  around the point  $(8, 3)$  clockwise  $90^\circ$ . Write the coordinates of the vertices after the rotation.

$D' \rightarrow D''$  ( \_\_\_\_\_, \_\_\_\_\_ )

$E' \rightarrow E''$  ( \_\_\_\_\_, \_\_\_\_\_ )

$F' \rightarrow F''$  ( \_\_\_\_\_, \_\_\_\_\_ )



3. Plot and label the points on the coordinate grid in Question 2.

$A$  (4, 0),  $B$  (0, 3),  $C$  (7, 6)

# Unit 11: Geometry

## Quiz (Lessons 17–20) — AB

1. a) Teacher to check.
- b) Teacher to check.  
There should be a  $90^\circ$  CCW rotation around a marked point between the polygons.

### BONUS

Sample answers:

5 to 6: Reflect 5 in the vertical line on the right side of the figure.

6 to 7: Reflect 6 in the bottom horizontal line, then translate image 2 units right and 2 units up.

2. a) Teacher to check reflection.  
 $D(4, 3) \rightarrow D'(8, 3)$   
 $E(1, 5) \rightarrow E'(11, 5)$   
 $F(2, 7) \rightarrow F'(10, 7)$
  - b) Teacher to check rotation.  
(8, 3)  
(10, 0)  
(12, 1)
3. Teacher to check.

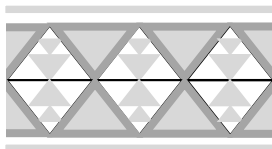
# Unit 11: Geometry

## Test (Lessons 13–20) — AB

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. a) Draw a rectangle around the smallest part that is transformed to create the pattern.



- b) Describe the transformations used to create the pattern.

2. a) Reflect triangle  $DEF$  in the given line. Write the coordinates of the vertices before and after reflection.

$D$  ( \_\_\_\_\_, \_\_\_\_\_ )  $\rightarrow$   $D'$  ( \_\_\_\_\_, \_\_\_\_\_ )

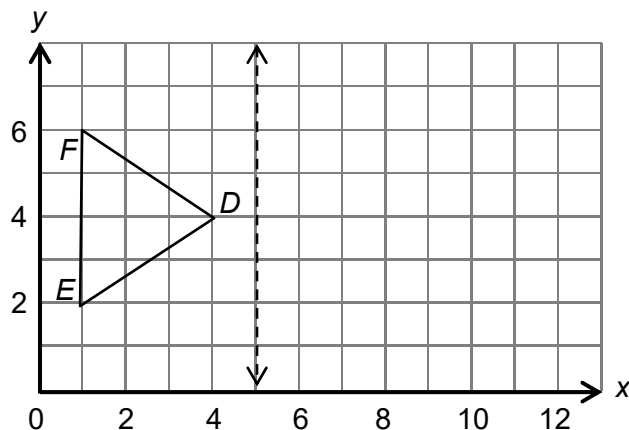
$E$  ( \_\_\_\_\_, \_\_\_\_\_ )  $\rightarrow$   $E'$  ( \_\_\_\_\_, \_\_\_\_\_ )

$F$  ( \_\_\_\_\_, \_\_\_\_\_ )  $\rightarrow$   $F'$  ( \_\_\_\_\_, \_\_\_\_\_ )

- b) Rotate triangle  $D'E'F'$  around the point  $(9, 3)$   $180^\circ$  clockwise. Write the coordinates of the vertices after the rotation.

$D' \rightarrow D''$  ( \_\_\_\_\_, \_\_\_\_\_ )  $E' \rightarrow E''$  ( \_\_\_\_\_, \_\_\_\_\_ )  $F' \rightarrow F''$  ( \_\_\_\_\_, \_\_\_\_\_ )

- c) What transformation takes  $DEF$  to  $D''E''F''$ ?



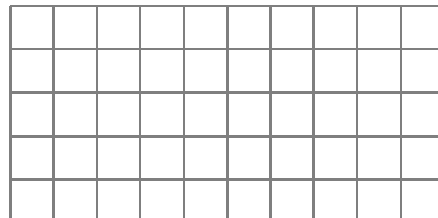
**BONUS** ► Which vertex of  $DEF$  goes to which vertex of  $D''E''F''$  under the transformation in part c)?

$D \rightarrow$  \_\_\_\_\_,  $E \rightarrow$  \_\_\_\_\_,  $F \rightarrow$  \_\_\_\_\_

3. Plot and label the points on the coordinate grid in Question 2.

$A$  (5, 0),  $B$  (0, 1),  $C$  (7, 6)

**BONUS** ► Draw two congruent shapes  $A$  and  $B$  so that there is no single translation, reflection, or rotation that takes  $A$  to  $B$ . Describe the sequence of transformations that takes  $A$  to  $B$ .



# Unit 11: Geometry

## Test (Lessons 13–20) — AB

1. Answers will vary. Sample answers:

- a) Draw a rectangle at top left:



- b) Reflect the rectangle in the horizontal line through the bottom side. Reflect the original and the image in the line through the right side of both rectangles. Translate all 4 rectangles right repeatedly.

2. a)  $D(4, 4) \rightarrow D'(6, 4)$   
 $E(1, 2) \rightarrow E'(9, 2)$   
 $F(1, 6) \rightarrow F'(9, 6)$   
b)  $D''(12, 2)$   
 $E''(9, 4)$   
 $F''(9, 0)$   
c) Translate  $DEF$   
8 units right, 2 units down.

### BONUS

$$D'', F'', E''$$

3. Teacher to check.

### BONUS

Answers will vary. Teacher to check.