

Unit 11: Geometry

Quiz (Lessons 13–16) — ON

Name: _____

Date: _____

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

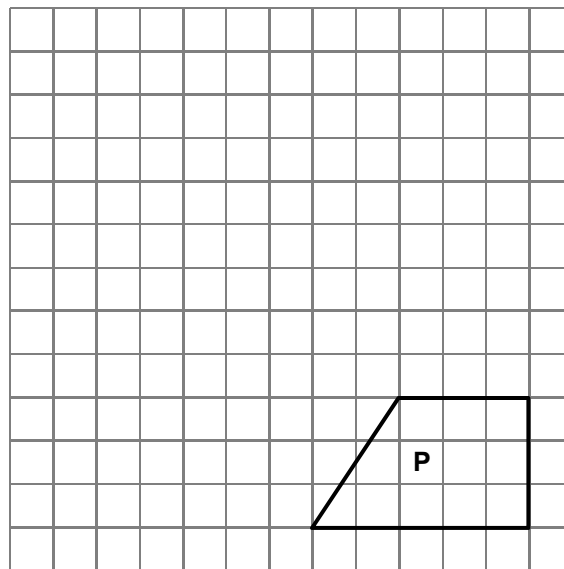
P to P': 5 units left and 3 units up

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

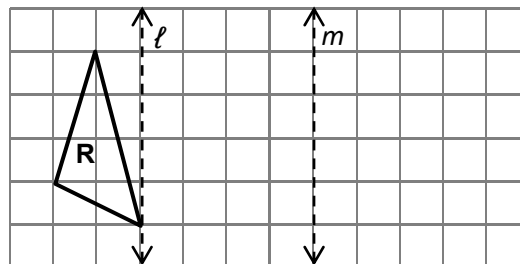
P to P*: _____ units _____ and
_____ units _____

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

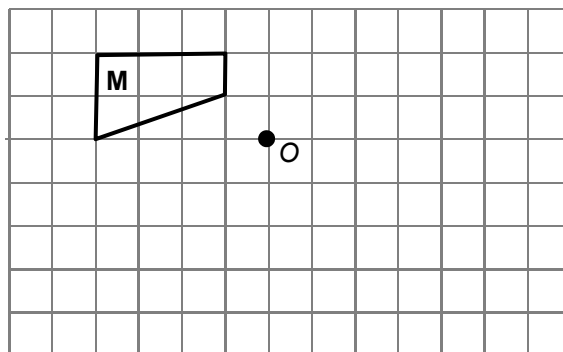
BONUS ► Draw a shape congruent to P that is not a translation of P. Explain how you know it is not a translation of P.



2. a) Reflect triangle R in line ℓ . 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*?



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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° CW or
 90° CCW

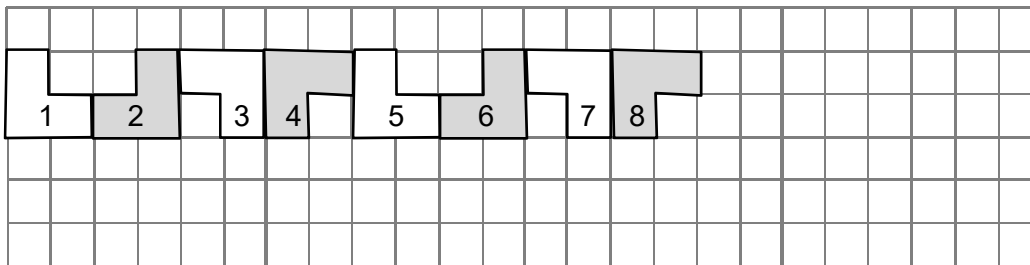
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Quiz (Lessons 17–20) — ON

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' (_____, _____)

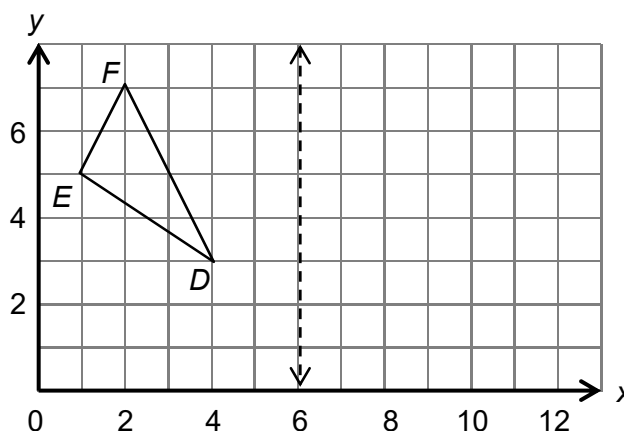
F (_____, _____) \rightarrow F' (_____, _____)

- b) Rotate the triangle $D'E'F'$ around the point $(8, 3)$ clockwise 90° . 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.

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

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Quiz (Lessons 17–20) — ON

1. a) Teacher to check.
- b) Teacher to check.
There should be a 90° 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.

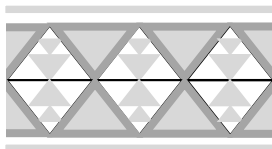
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Test (Lessons 13–20) — ON

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' (_____, _____)

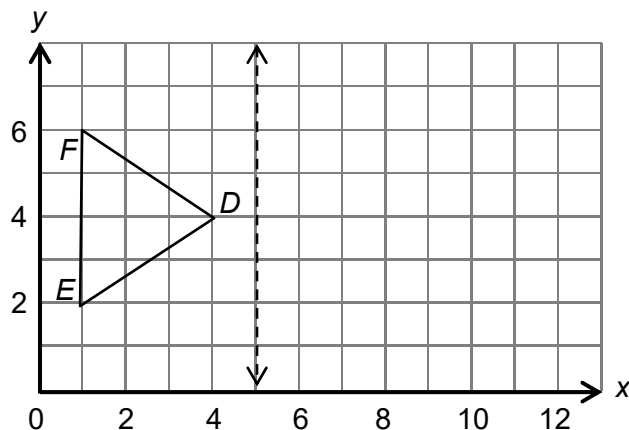
E (_____, _____) \rightarrow E' (_____, _____)

F (_____, _____) \rightarrow F' (_____, _____)

- b) Rotate triangle $D'E'F'$ around the point $(9, 3)$ 180° 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 $D''E''F''$?



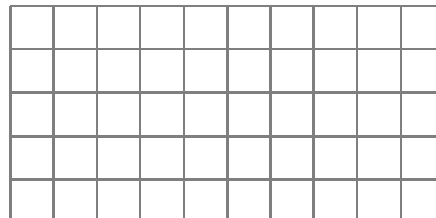
BONUS ► Which vertex of DEF goes to which vertex of $D''E''F''$ under the transformation in part c)?

$D \rightarrow$ _____, $E \rightarrow$ _____, $F \rightarrow$ _____

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.



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Test (Lessons 13–20) — ON

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.