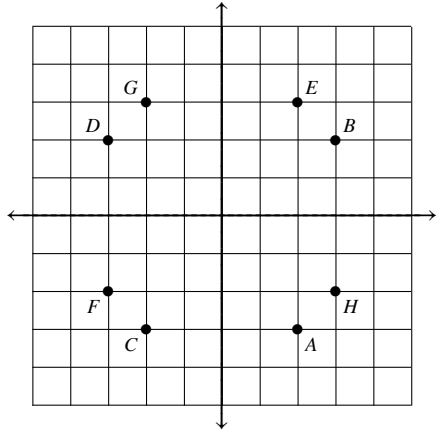# CCM2 Unit 1 Transformations Review

Name: _____   **Date:** _____

1. What is the image of point A after a rotation of $90°$ in the clockwise direction?

   A. B B. D C. E D. F

2. What is the image of point A after a rotation of $180°$ in the counterclockwise direction?

   A. C B. D C. F D. G

3. What is the image of point A after a rotation of $270°$ in the counterclockwise direction?

   A. C B. D C. E D. F

4. Find the image of the point $(5, 3)$ after a $90°$ clockwise rotation.
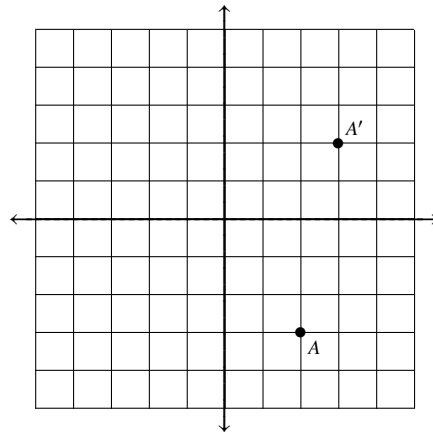
   A. $(3, 5)$ B. $(-3, -5)$

   C. $(3, -5)$ D. $(5, -3)$

5. Find the coordinates of P', the image of $P(-2, 1)$ after a clockwise rotation of $180°$ about the origin.

   A. $(2, -1)$ B. $(-2, -1)$

   C. $(-1, 2)$ D. $(1, -2)$

6. A' is the image of A. Which of the following rotations could be used to perform this transformation?

   I. $90°$ clockwise

   II. $90°$ counterclockwise

   III. $270°$ clockwise

   IV. $270°$ counterclockwise

   A. I only   B. II only

   C. II and III   D. II and IV

7. A point $(2, 2)$ is reflected over the y-axis. What are the coordinates of the image point?

   A. $(-2, 2)$ B. $(2, -2)$

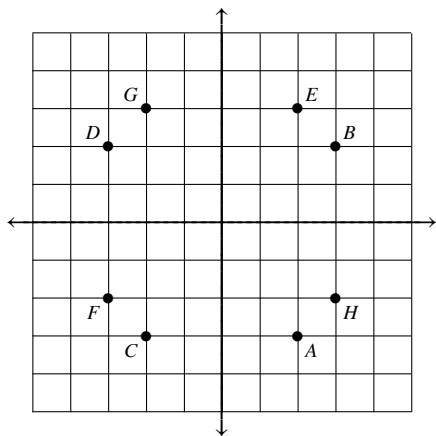   C. $(-2, -2)$ D. $(2, 0)$

8. What are the coordinates of the image of $P(3, -4)$ under a reflection in the x-axis?

   A. $(3, -4)$ B. $(-3, 4)$

   C. $(3, 4)$ D. $(-3, 4)$

9. Find P', the image of $P(-3, 6)$, after a reflection across the line $y = x$.

   A. $(6, -3)$ B. $(-3, -6)$

   C. $(3, -6)$ D. $(6, 3)$

10. What is the image of point A after a rotation of $90°$ in the counterclockwise direction followed by a reflection in the y-axis?
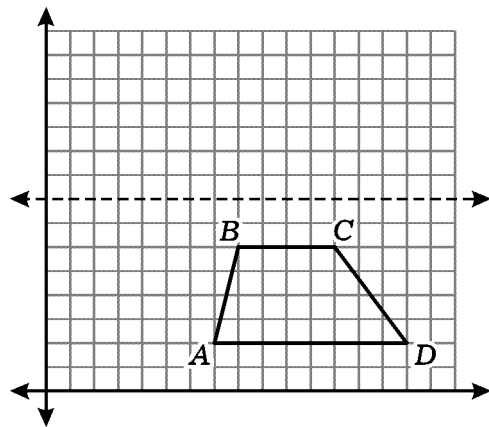

   A. G B. C C. D D. H

11. Reflect the point $(-4, 1)$ across the line $y = -2$, then translate it horizontally five units in the positive direction. What are the intermediate and the final coordinates, respectively?

   A. $(0, 1), (5, 1)$ B. $(0, 1), (0, 6)$

   C. $(-4, -5), (1, -5)$ D. $(-4, -1), (1, -1)$

12. If the trapezoid $ABCD$ is reflected about the dashed line, what are the new coordinates for D'?

   A. $(7, -2)$ B. $(7, 14)$

   C. $(15, -2)$ D. $(15, 14)$

13. Which shape, if rotated $90°$, will coincide with itself? ("Coincide" means means there's an exact match between the set of points, or one shape will lay perfectly on top of the other.)

   A. rectangle   B. equilateral triangle

   C. parallelogram   D. square

14. A figure has *rotational symmetry* if it can be rotated less than 360° and look the same as it did originally (before the rotation).

Which of these figures has rotational symmetry?

I.
II.
III.
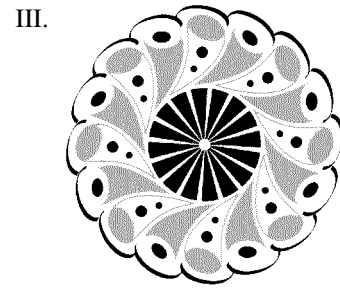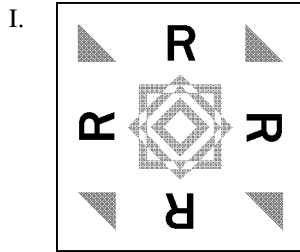
A. I only
B. III only
C. II and III only
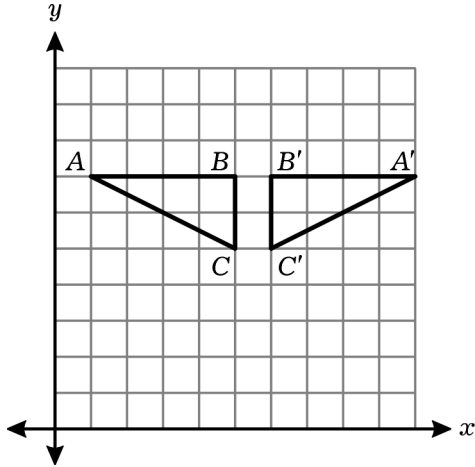D. I and III only

15. A tessellation is a repeating pattern based on congruence transformations. Here are some examples:

I.

II.

III.
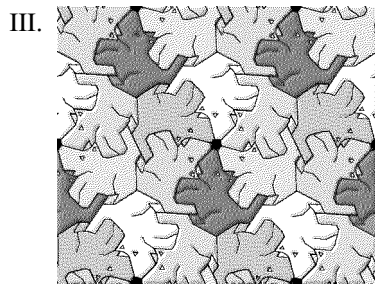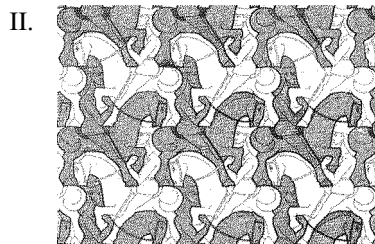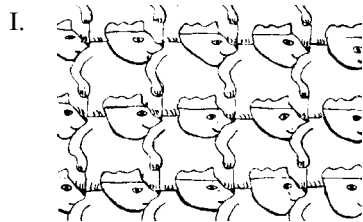
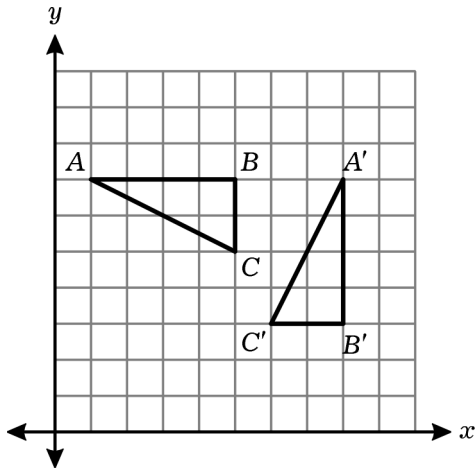Which of the above examples use only *translations* to make the pattern?

A. I only
B. II only
C. I and II only
D. II and III only

16. Triangle $A'B'C'$ is an image of the other triangle. What kind of transformation is shown?

A. translation   B. reflection

C. dilation   D. rotation

18.
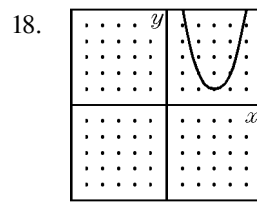
Which graph shows the reflection in the line $y = -x$ of the graph shown above?
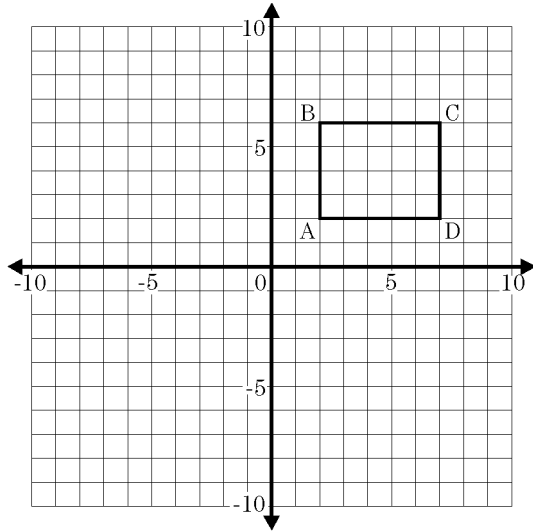
A.

B.

C.

D.

17. Triangle $A'B'C'$ is an image of the other triangle. What kind of transformation is shown?

A. translation   B. reflection

C. dilation   D. rotation

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19.

Using the coordinate plane, which of the following statements would result in figure *ABCD* being in Quadrant IV?

    I.   Figure *ABCD* is reflected across the *x*-axis.

    II. Figure *ABCD* is reflected across the *y*-axis.

    III. Figure *ABCD* is translated 4 units to the left and 2 units down.

    IV. Figure *ABCD* is rotated 90° about point *B*.

A. I only   B. II only

C. III only   D. IV only

20. A rectangle has vertices at $M(1, 1)$, $N(4, 1)$, $O(4, 5,)$ and $P(1, 5)$. It is translated to the left 4 units and down 3 units to form rectangle $M'N'O'P'$.

    a) Graph the two rectangles. Be sure to label all vertices.
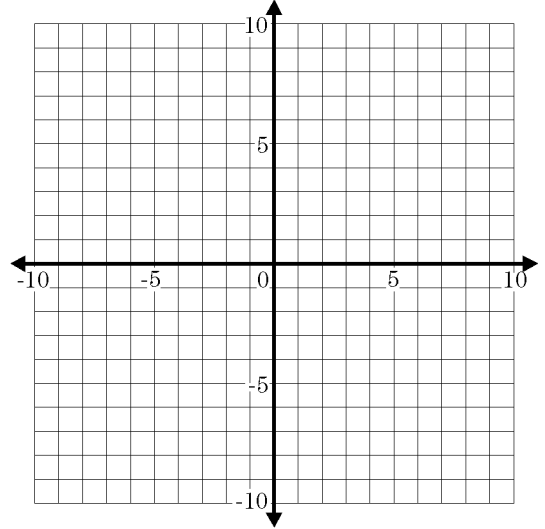
    b) Show or explain why the two rectangles have the same area.

    c) If you draw line segments between P and P', M and M', N and N', and O and O', what 3-dimensional figure is created?

21. What are the coordinates of point $(2, 3)$ after a translation to the right of 2 units and down 5 units, and then a dilation by a factor of 1.5 about $(0, 0)$?

    A. $(6, -3)$ B. $(0, -1)$

    C. $(3, 0)$ D. $(0, 2)$

22. What are the coordinates of point $(2, 3)$ after a translation to the right of 2 units and down 5 units, and then a dilation by a factor of 0.5 about $(0, 0)$?

    A. $(-6, -3)$ B. $(2, -1)$

    C. $(3, 0)$ D. $(0, 2)$
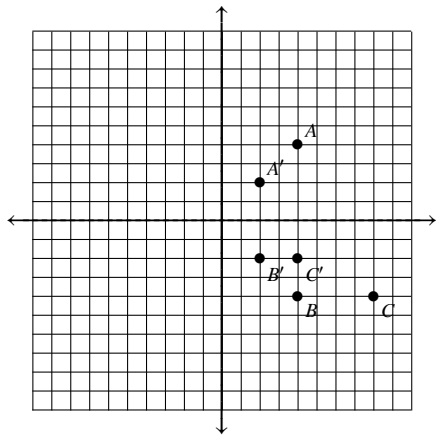
         CCM2 Unit 1 Transformations Review

23. What are the coordinates of point $(2, 3)$ after a translation to the left of 2 units and down 5 units, and then a dilation by a factor of 1.5 about $(0, 0)$?

A. $(-6, -3)$ B. $(-2, -1)$

C. $(0, -1)$ D. $(0, -3)$

24. $\triangle ABC$ is the original figure and $\triangle A'B'C'$ represents its dilation image. Fill in the blanks:

$\triangle A'B'C'$ is a dilation of $\triangle ABC$ by a factor of _____ about the point _____ .

A. 0.5; $(0, 0)$ B. 0.5; $(4, -1)$

C. 2; $(0, 0)$ D. 2; $(4, 0)$

25. $\triangle A'B'C'$, with vertices $A'(0, 0)$, $B'(0, 2)$ and $C'(1.5, 3)$, is the image of $\triangle ABC$ with vertices $A(0, 0)$, $B(0, 4)$, and $C(3, 6)$ under a dilation. If the origin is the center of dilation, what is the scale factor?

A. 0   B. $\frac{1}{2}$ C. 2

D. undefined

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1.
Answer: D
Objective: G.CO.02

2.
Answer: D
Objective: G.CO.02

3.
Answer: D
Objective: G.CO.02

4.
Answer: C
Objective: G.CO.02

5.
Answer: A
Objective: G.CO.02

6.
Answer: C
Objective: G.CO.02

7.
Answer: A
Objective: G.CO.02

8.
Answer: C
Objective: G.CO.02

9.
Answer: A
Objective: G.CO.02

10.
Answer: C
Objective: G.CO.02

11.
Answer: C
Objective: G.CO.02

12.
Answer: D
Objective: G.CO.02

13.
Answer: D
Objective: G.CO.03

14.
Answer: D
Objective: G.CO.04

15.
Answer: A
Objective: G.CO.04

16.
Answer: B
Objective: G.CO.05

17.
Answer: D
Objective: G.CO.05

18.
Answer: C
Objective: G.CO.05

19.
Answer: A
Objective: G.CO.05

20.
Answer: $M'(-3, -2)$, $N'(0, -2)$, $O'(0, 2)$, $P'(-3, 2)$;
               answers vary; rectangular prism
Objective: G.CO.05

21.
Answer: A
Objective: G.SRT.01A

22.
Answer: B
Objective: G.SRT.01A

23.
Answer: D
Objective: G.SRT.01A

24.
Answer: A
Objective: G.SRT.01A

25.
Answer: B
Objective: G.SRT.01B