

G.CO.A.2: Analytical Representations of Transformations 1b

- 1 A polygon is transformed according to the rule: $(x,y) \rightarrow (x+2,y)$. Every point of the polygon moves two units in which direction?
- 2 What is the image of point $(2,5)$ under the translation that shifts (x,y) to $(x+3, y-2)$?
- 3 What are the coordinates of P' , the image of $P(-4,0)$ under the translation $(x-3, y+6)$?
- 4 The image of point $(3,-5)$ under the translation that shifts (x,y) to $(x-1, y-3)$ is
- 5 What is the image of point $(-3,4)$ under the translation that shifts (x,y) to $(x-3, y+2)$?
- 6 What are the coordinates of the image of point $A(2,-7)$ under the translation $(x,y) \rightarrow (x-3, y+5)$?
- 7 Given the transformations:
 $R(x,y) \rightarrow (-x,y)$
 $S(x,y) \rightarrow (y,x)$
What is $(R \circ S)(5,-1)$?
- 8 What is the image of (x,y) after a translation of 3 units right and 7 units down?
- 9 What are the coordinates of P' , the image of point $P(x,y)$ after translation $T_{4,4}$?
- 10 The coordinates of any point (x,y) after a reflection in the x -axis can *always* be represented by
- 11 Which type of transformation is $(x,y) \rightarrow (x+2, y-2)$?
- 12 The transformation $(x,y) \rightarrow (3x, 3y)$ represents
 - 1) a dilation
 - 2) an isometry
 - 3) a reflection
 - 4) a translation
- 13 Which transformation would result in the perimeter of a triangle being different from the perimeter of its image?
 - 1) $(x,y) \rightarrow (y,x)$
 - 2) $(x,y) \rightarrow (x,-y)$
 - 3) $(x,y) \rightarrow (4x, 4y)$
 - 4) $(x,y) \rightarrow (x+2, y-5)$

- 14 Which transformation is *not* an isometry?
- 1) $(x,y) \rightarrow (x+6,y-2)$
 - 2) $(x,y) \rightarrow (y,-x)$
 - 3) $(x,y) \rightarrow \left(\frac{1}{2}x, \frac{1}{2}y\right)$
 - 4) $(x,y) \rightarrow (-y,-x)$
- 15 Which transformation is an example of an opposite isometry?
- 1) $(x,y) \rightarrow (x+3,y-6)$
 - 2) $(x,y) \rightarrow (3x,3y)$
 - 3) $(x,y) \rightarrow (y,x)$
 - 4) $(x,y) \rightarrow (y,-x)$
- 16 Which transformation represents a dilation?
- 1) $(8,4) \rightarrow (11,7)$
 - 2) $(8,4) \rightarrow (-8,4)$
 - 3) $(8,4) \rightarrow (-4,-8)$
 - 4) $(8,4) \rightarrow (4,2)$
- 17 Under the transformation $(x,y) \rightarrow (2x,2y)$, which property is not preserved?
- 1) distance
 - 2) orientation
 - 3) parallelism
 - 4) angle measure
- 18 Quadrilateral $ABCD$ undergoes a transformation, producing quadrilateral $A'B'C'D'$. For which transformation would the area of $A'B'C'D'$ *not* be equal to the area of $ABCD$?
- 1) a rotation of 90° about the origin
 - 2) a reflection over the y -axis
 - 3) a dilation by a scale factor of 2
 - 4) a translation defined by $(x,y) \rightarrow (x+4,y-1)$
- 19 Translation T is defined by $(x,y) \rightarrow (x+2,y-1)$. Find the image of $(-1,5)$ under translation T .
- 20 A translation maps $P(x,y)$ onto $P'(x+3,y-2)$. Find the coordinates of Q , whose image under the same transformation is $Q'(6,2)$.

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Answer Section

1 ANS:
right

REF: fall0818ge

2 ANS:
(5,3)

REF: 069903a

3 ANS:
(-7,6)

REF: 080409a

4 ANS:
(2,-8)

REF: 010509a

5 ANS:
(-6,6)

REF: 080609a

6 ANS:
(-1,-2)
 $(2,-7) \rightarrow (2-3,-7+5) = (-1,-2)$

REF: 061504ge

7 ANS:
(1,5)

REF: 088724siii

8 ANS:
(x+3,y-7)

REF: 060402a

9 ANS:
(x+4,y+4)

REF: 081504ge

10 ANS:
(x,-y)

REF: 088722siii

11 ANS:
translation

REF: 080908b

12 ANS: 1 REF: 088518siii
13 ANS: 3 REF: 011605geo
14 ANS: 3 REF: 089031siii
15 ANS: 3 REF: 010507b
16 ANS: 4 REF: 010719b
17 ANS: 1 REF: 080810b
18 ANS: 3 REF: 061501ge

19 ANS:
(1,4)

REF: 018601siii

20 ANS:
(3,4)

REF: 018709siii