

NAME: _____

G.G.54: Define, investigate, justify, and apply isometries in the plane (rotations, reflections, translations, glide reflections) Note: Use proper function notation

1. fall0803ge, P.I. G.G.54

Triangle ABC has vertices $A(1,3)$, $B(0,1)$, and $C(4,0)$. Under a translation, A' , the image point of A , is located at $(4,4)$. Under this same translation, point C' is located at

- [A] $(1,-1)$ [B] $(7,1)$
[C] $(3,2)$ [D] $(5,3)$

2. 060309a, P.I. G.G.54

A translation moves $P(3,5)$ to $P'(6,1)$. What are the coordinates of the image of point $(-3,-5)$ under the same translation?

- [A] $(-6,-1)$ [B] $(0,-9)$
[C] $(-5,-3)$ [D] $(-6,-9)$

3. 010614a, P.I. G.G.54

The image of point $(-2,3)$ under translation T is $(3,-1)$. What is the image of point $(4,2)$ under the same translation?

- [A] $(5,4)$ [B] $(0,7)$
[C] $(-1,6)$ [D] $(9,-2)$

4. 080508b, P.I. G.G.54

The image of the origin under a certain translation is the point $(2,-6)$. The image of point $(-3,-2)$ under the same translation is the point

- [A] $(-6,12)$ [B] $(-5,4)$
[C] $(-\frac{3}{2}, \frac{1}{3})$ [D] $(-1,-8)$

5. spring9823a, P.I. G.G.54

A design was constructed by using two rectangles $ABDC$ and $A'B'D'C'$. Rectangle $A'B'D'C'$ is the result of a translation of rectangle $ABDC$. The table of translations is shown below. Find the coordinates of points B and D' .

Rectangle $ABDC$	Rectangle $A'B'D'C'$
$A(2,4)$	$A'(3,1)$
B	$B'(-5,1)$
$C(2,-1)$	$C'(3,-4)$
$D(-6,-1)$	D'

6. 010605b, P.I. G.G.54

Which transformation of the graph of $y = x^2$ would result in the graph of $y = x^2 + 2$?

- [A] $r_{y=2}$ [B] $T_{0,2}$ [C] $R_{0,90}$ [D] D_2

7. 080801b, P.I. G.G.54

Which transformation of $y = 2^x$ results in the function $y = 2^x - 2$?

- [A] $r_{x\text{-axis}}$ [B] $T_{0,-1}$
[C] $r_{y\text{-axis}}$ [D] $T_{0,-2}$

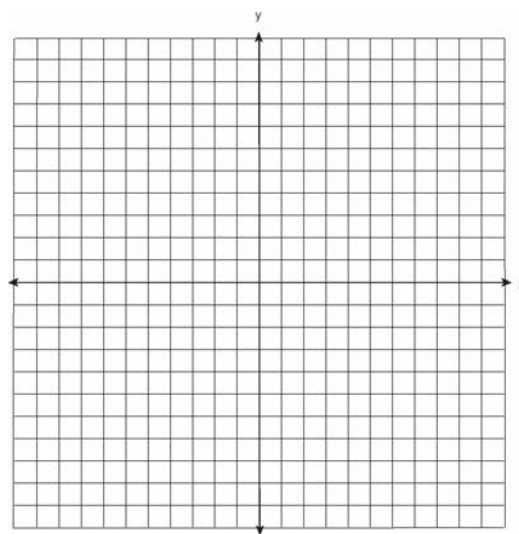
8. 080105b, P.I. G.G.54

Which transformation is a direct isometry?

- [A] $r_{y\text{-axis}}$ [B] $T_{2,5}$ [C] D_2 [D] D_{-2}

9. 060129b, P.I. G.G.54

Two parabolic arches are to be built. The equation of the first arch can be expressed as $y = -x^2 + 9$, with a range of $0 \leq y \leq 9$, and the second arch is created by the transformation $T_{7,0}$. On the accompanying set of axes, graph the equations of the two arches. Graph the line of symmetry formed by the parabola and its transformation and label it with the proper equation.



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[1] B _____

[2] B _____

[3] D _____

[4] D _____

[2] Answers of $B(-6,4)$ and $D'(-5,-4)$.

[5] [1] One of the correct answers listed above.

[6] B _____

[7] D _____

[8] B _____

[4] Both parabolas are graphed correctly with the line of symmetry $x = 3.5$ drawn and labeled as $x = 3.5$.

[3] $y = -x^2 + 9$ is graphed incorrectly, but an appropriate translation is drawn, and an appropriate line of symmetry is drawn and labeled correctly.

or [3] $y = -x^2 + 9$ and its translation are graphed correctly, but no line of symmetry or an incorrect line of symmetry is drawn for the translation or no equation or an incorrect equation is shown for the line of symmetry.

[2] $y = -x^2 + 9$ is graphed correctly, but its translation is graphed incorrectly, but an appropriate line of symmetry is drawn and labeled correctly.

or [2] $y = -x^2 + 9$ is graphed incorrectly, but an appropriate translation is graphed, but an incorrect line of symmetry is drawn.

[1] $y = -x^2 + 9$ and its translation are graphed incorrectly, but an appropriate line of symmetry is drawn and labeled correctly.

or [1] $y = -x^2 + 9$ is graphed correctly, but an incorrect translation and line of symmetry are drawn.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[9] incorrect procedure.