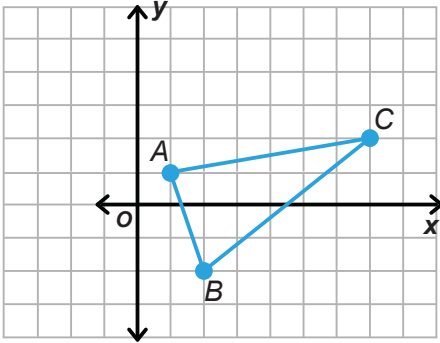


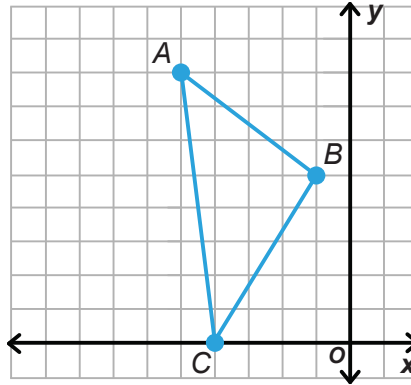
Reflections

Additional Exercises

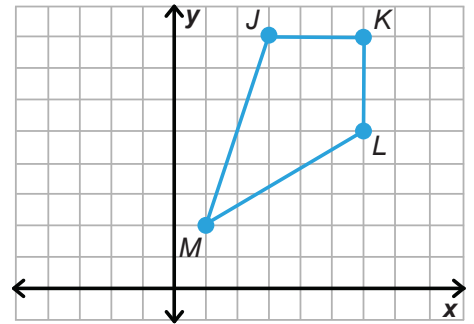
1. Graph the reflection across the line $x = 3$.



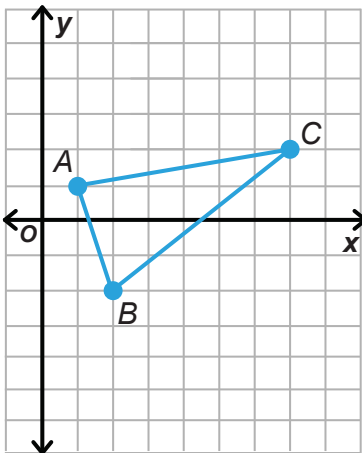
2. Graph the reflection across the line $y = 4$.



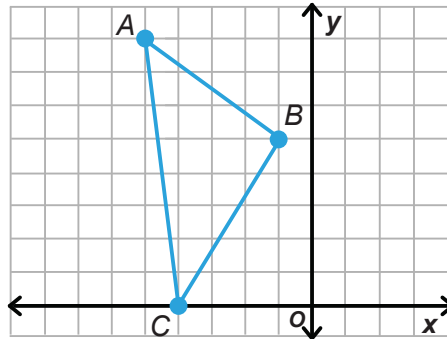
3. Graph the reflection across the line $x = 1$.



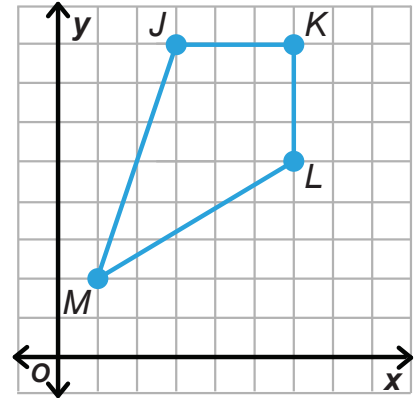
4. Graph the reflection across the line $y = -2$.



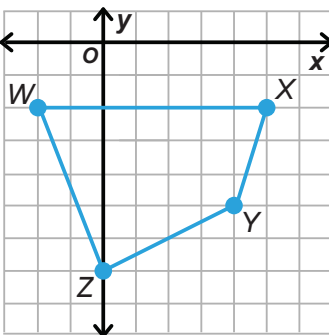
5. Graph the reflection across the line $x = -1$.



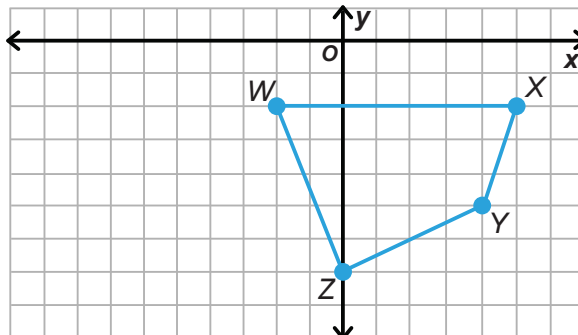
6. Graph the reflection across the line $y = 4$.



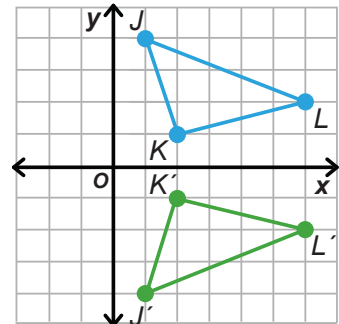
7. Graph the reflection across the line $y = -4$.



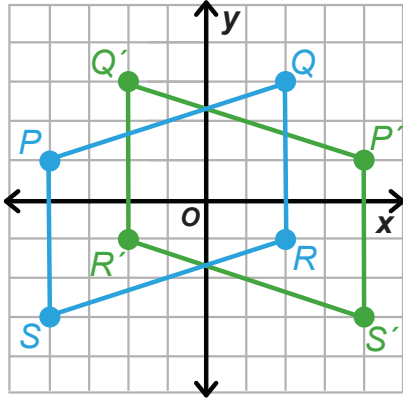
8. Graph the reflection across the line $x = -2$.



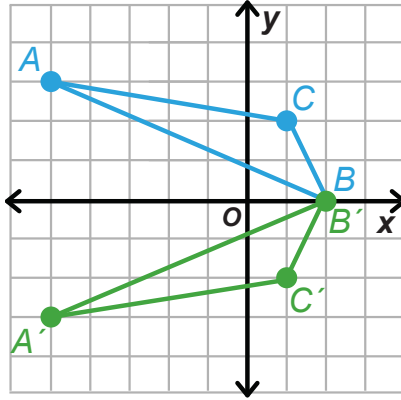
9. Identify the line of reflection in the graph.



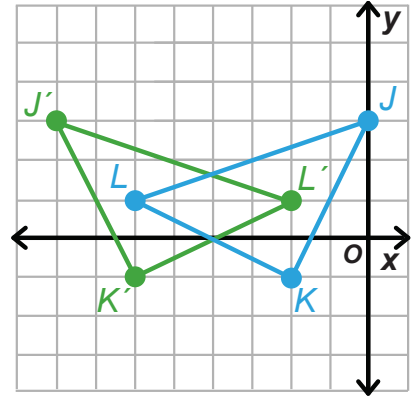
10. Identify the line of reflection in the graph.



11. Identify the line of reflection in the graph.



12. Identify the line of reflection in the graph.

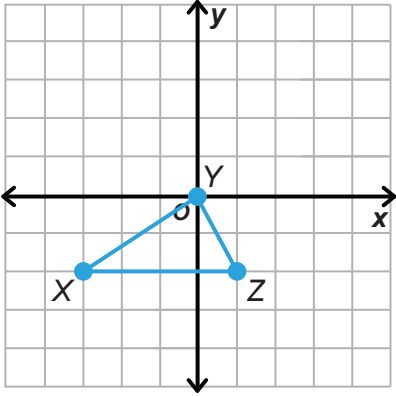


Reflections

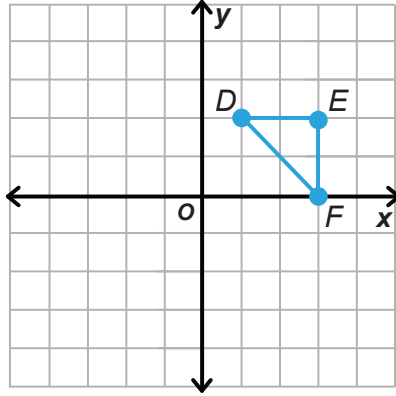
Extension

Reflect each image across both the x - and y -axis.

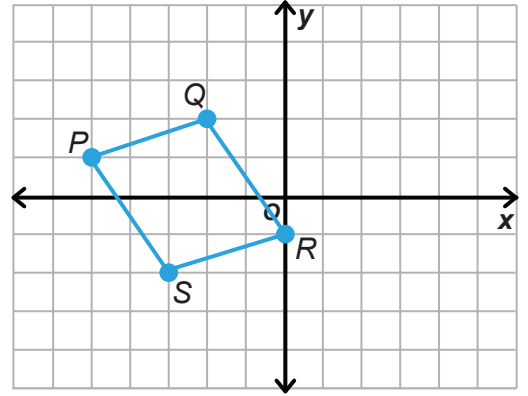
1.



2.



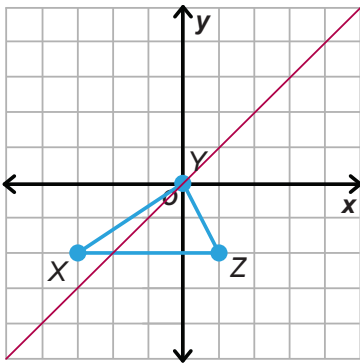
3.



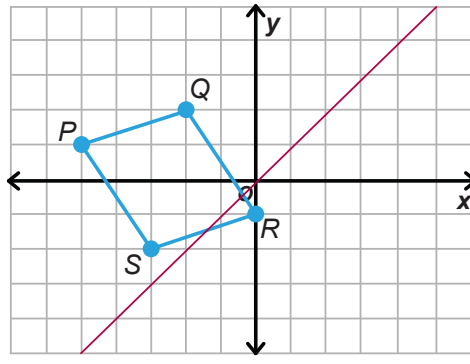
4. Summarize the relationship between the coordinates of an image and its reflected image across both the x - and y -axis.

Reflect each image across the line $y = x$.

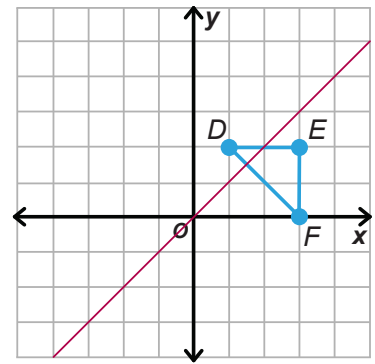
5.



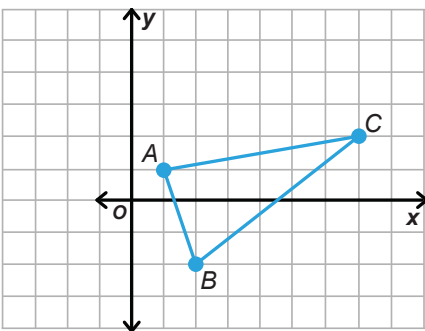
6.



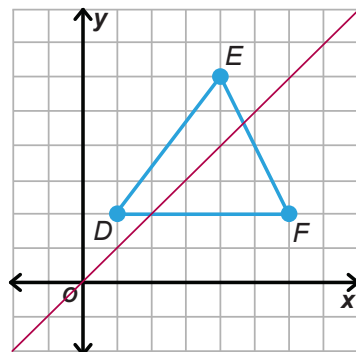
7.



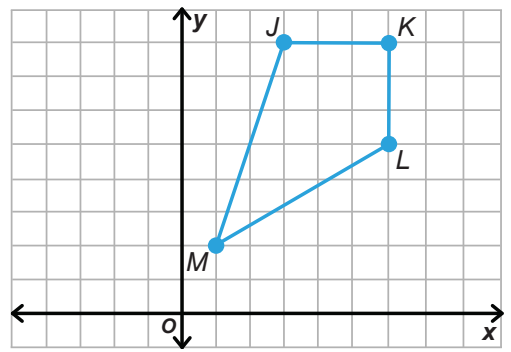
8.



9.



10.



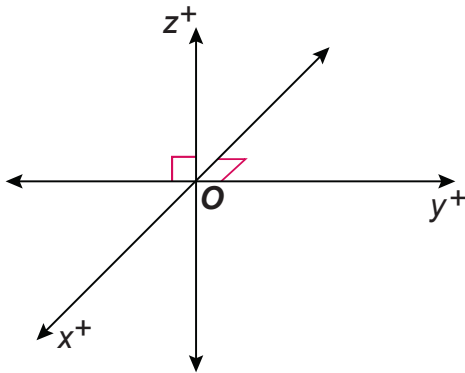
11. Summarize the relationship between the coordinates of an image and its reflected image across the line $y = x$.

Reflections

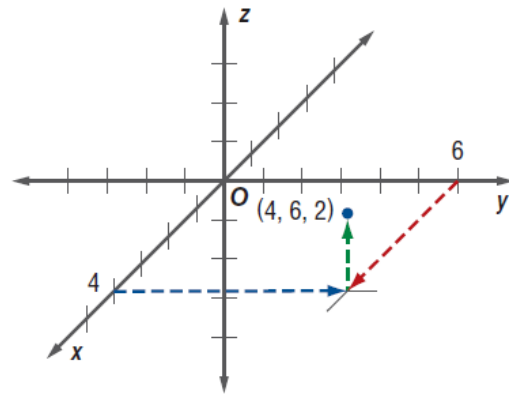
Enrichment

A three-dimensional coordinate system is used to represent a point in space.

A third axis, called the **z-axis**, goes through the origin and is perpendicular to the x - and y -axis. A point in space is represented by an ordered triple of real numbers (x, y, z) .



To plot a point in space, locate the point (x, y) , then move up or down parallel to the z -axis according to the directed distance given by z .

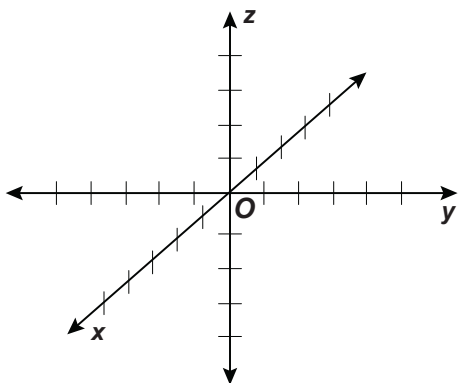


Points are reflected across *planes* in three-dimensional space. When reflecting across the xy -plane, negate the z -coordinate.

Plot each point in the three-dimensional coordinate system. Then plot the designated reflection.

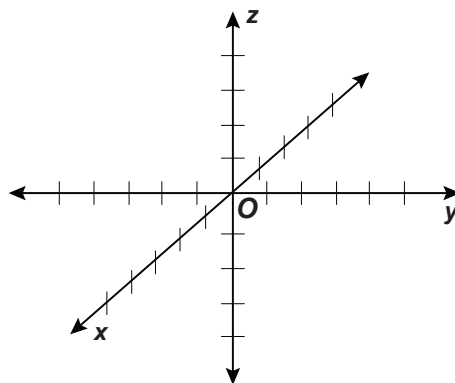
1. $(-3, -4, 2)$

reflected across the yz -plane.



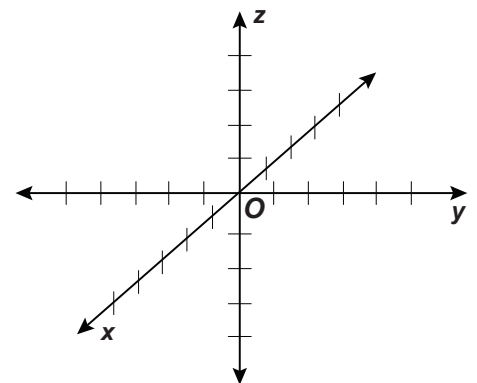
2. $(3, 2, -3)$

reflected across the xz -plane.



3. $(5, -4, -1)$

reflected across the xy -plane.

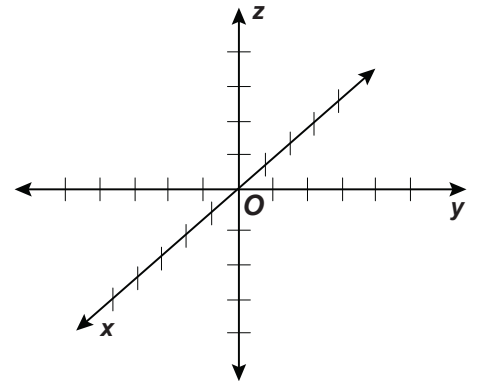
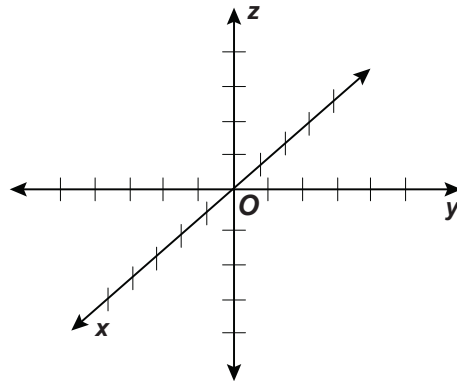
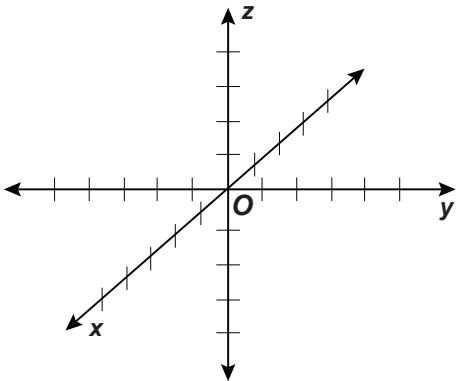


Plot each shape in the three-dimensional coordinate system.

4. $A(0, 0, 0)$; $B(3, 0, 0)$;
 $C(0, 3, 0)$; $D(0, 0, 3)$;
 $E(3, 3, 0)$; $F(0, 3, 3)$;
 $G(3, 0, 3)$; $H(3, 3, 3)$

5. $A(0, 0, 0)$; $B(4, 0, 0)$;
 $C(4, 0, 4)$; $D(0, 0, 4)$;
 $E(2, 2, 4)$; $F(2, 2, 0)$

6. $A(0, 0, 0)$; $B(0, 0, 4)$;
 $C(5, 0, 0)$; $D(5, 0, 4)$;
 $E(0, 3, 0)$; $F(0, 3, 4)$



Reflect the shapes in Problems 4-6 across each designated plane.

7. Reflect the shape in Problem #4 across the yz -plane.

8. Reflect the shape in Problem #5 across the xz -plane.

9. Reflect the shape in Problem #6 across the yz -plane.