Pre-Algebra Summer Review Part II #1

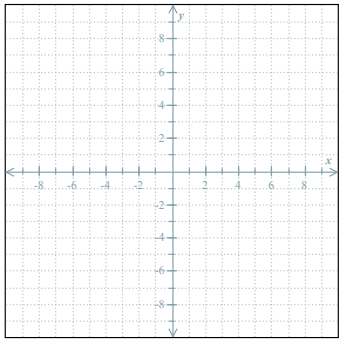
Student Name : _____ Class Name : **7th Grade ALEKS Section II**

Number of Questions: **40** Instructor Name : **Hoyos, Michelle**

Question 1 of 40

Graph the line.

$y = -2x - 4$



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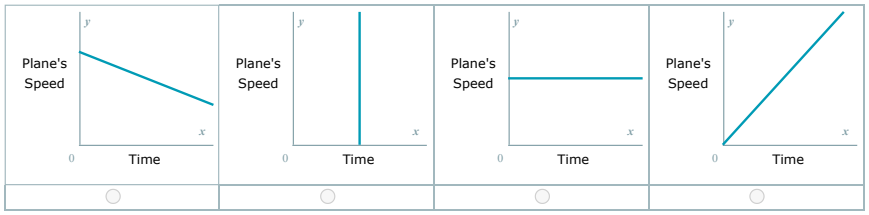
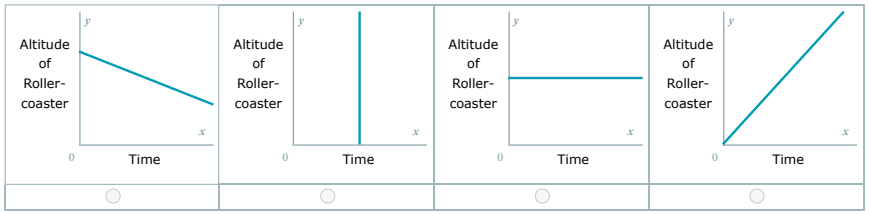
Question 2 of 40

For each scenario below, choose the best graph.

(a) A passenger plane flies at a constant speed.



(b) A rollercoaster climbs up the track to begin a ride.



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Question 3 of 40

For each function, state whether it is linear.

Function 1	Function 2
$\{(-5, -1), (-4, -1), (-3, -1), (-2, -1)\}$	$\{(4, -4), (7, 0), (10, 4), (13, 8)\}$
○ Linear ○ Not linear	○ Linear ○ Not linear
Function 3	**Function 4**

x	y
-4	1
-3	-2
-2	-4
-1	-8

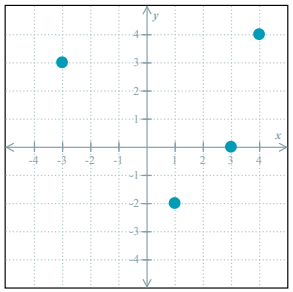
○ Linear
○ Not linear

x	y
3	5
7	4
11	3
15	2

○ Linear
○ Not linear

Question 4 of 40

The graph of the relation T is shown below.



Give the domain and range of T.
Write your answers using set notation.

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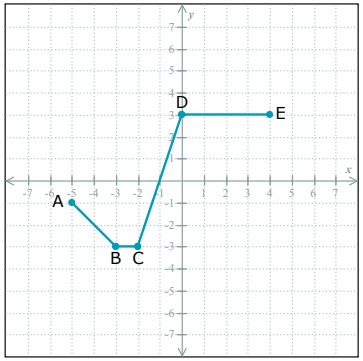
Question 5 of 40

Use the graph to determine the behavior of the function between the indicated points.



Points	Behavior of the function
A and B	○ increasing ○ constant ○ decreasing
B and C	○ increasing ○ constant ○ decreasing
C and D	○ increasing ○ constant ○ decreasing
D and E	○ increasing ○ constant ○ decreasing

Question 6 of 40

A plant is already 10.00 meters tall, and it will grow 25 centimeters every month. The plant's height, H (in meters), after x months is given by the following.

$$H = 10.00 + 0.25x$$

What is the plant's height after 20 months?

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Question 7 of 40

For each equation, determine whether it is linear.

Equation	Is the equation linear?	
	Yes	No
(a) $y=3^x$		
(b) $y=2x-6$		
(c) $y=-x^2+9$		
(d) $y=4x^3$		

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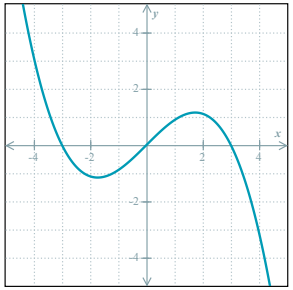
Question 8 of 40

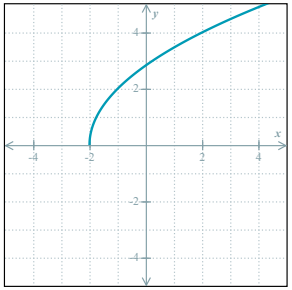
For each function graphed below, determine whether it is linear.

Function 1



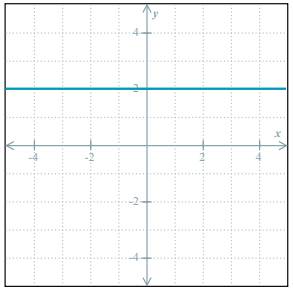
Linear
Not linear

Function 2



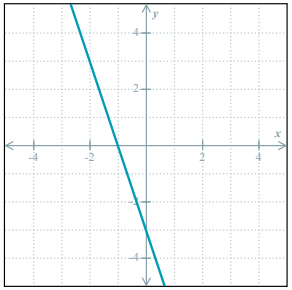
Linear
Not linear

Function 3



Linear
Not linear

Function 4



Linear
Not linear

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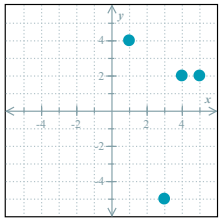
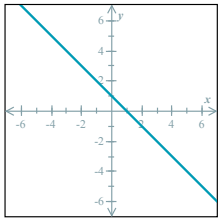
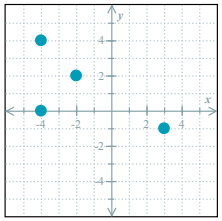
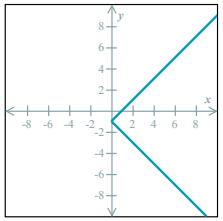
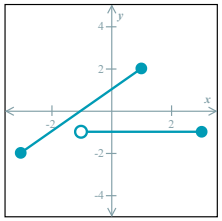
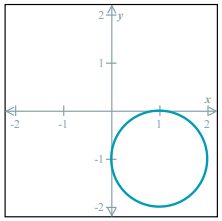
Question 9 of 40

For each graph below, state whether it represents a function.

	Graph 1	Graph 2	Graph 3
			
Function?	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No
	Graph 4	Graph 5	Graph 6
			
Function?	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No

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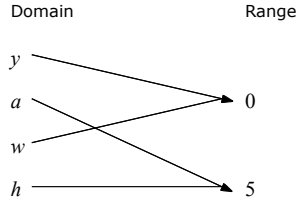
Question 10 of 40

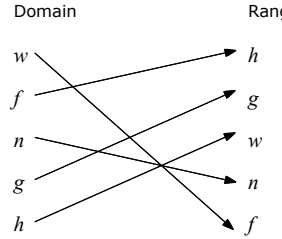
For each relation, decide whether or not it is a function.

Relation 1



○ Function
○ Not a function

Relation 2



○ Function
○ Not a function

Relation 3

Domain	Range
n	pencil
a	pencil
b	pencil
r	pencil
r	cloud
s	cloud

○ Function
○ Not a function

Relation 4

Domain	Range
-4	-2
5	-4
3	-2
-6	-2
-7	-2

○ Function
○ Not a function

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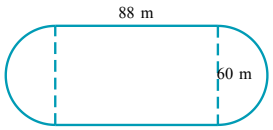
Question 11 of 40

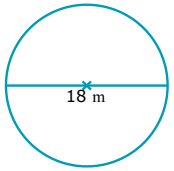
A training field is formed by joining a rectangle and two semicircles, as shown below. The rectangle is 88 m long and 60 m wide.

Find the area of the training field. Use the value 3.14 for π, and do not round your answer. Be sure to include the correct unit in your answer.



Question 12 of 40

Find the area of a circle with diameter 18 m.
Use the value 3.14 for π, and do not round your answer.
Be sure to include the correct unit in your answer.



Question 13 of 40

The circumference of a circular painting is 18.84 feet. What is the diameter of the painting? Use 3.14 for π and do not round your answer.

Question 14 of 40

A wheel on Frank's bicycle is 1.5 ft in diameter. Frank races the bicycle for 141 ft. How many times does the wheel turn as the bicycle travels this distance?

Use the value 3.14 for π. Round your answer to the nearest tenth. Do not round any intermediate steps.

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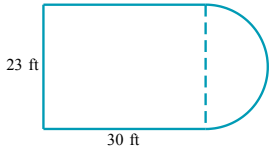
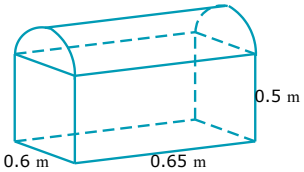
Question 15 of 40

A rose garden is formed by joining a rectangle and a semicircle, as shown below. The rectangle is 30 ft long and 23 ft wide. If the gardener wants to build a fence around the garden, how many feet of fence are required? (Use the value 3.14 for π, and do not round your answer. Be sure to include the correct unit in your answer.)



Question 16 of 40

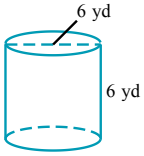
A company manufactures aluminum mailboxes in the shape of a box with a half-cylinder top. The company will make 1388 mailboxes this week. If each mailbox has dimensions as shown in the figure below, how many square meters of aluminum will be needed to make these mailboxes? In your calculations, use the value 3.14 for π, and round up your answer to the next square meter.



Question 17 of 40

Find the surface area of a cylinder with a base diameter of 6 yd and a height of 6 yd.

Use the value 3.14 for π, and do not do any rounding.
Be sure to include the correct unit.



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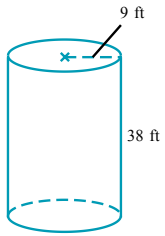
Question 18 of 40

A grain silo has a cylindrical shape. Its radius is 9 ft, and its height is 38 ft. What is the volume of the silo?

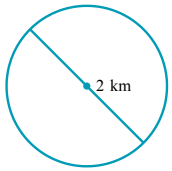
Use the value 3.14 for π, and round your answer to the nearest whole number.
Be sure to include the correct unit in your answer.



Question 19 of 40

Find the circumference and the area of a circle with diameter 2 km.

Write your answers in terms of π, and be sure to include the correct units in your answers.



Question 20 of 40

A swimming pool has to be drained for maintenance. The pool is shaped like a cylinder with a diameter of 6 m and a depth of 1.3 m. Suppose water is pumped out of the pool at a rate of 17 m^3 per hour. If the pool starts completely full, how many hours will it take to empty the pool?

Use the value 3.14 for π, and round your answer to the nearest hour. Do not round any intermediate computations.

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Question 21 of 40

The side lengths of two triangles are given below.

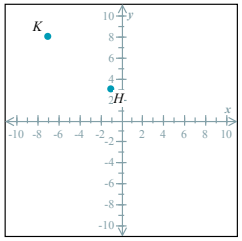
Answer the questions about each triangle.

(a) One triangle has side lengths 7, 25, and 24.	(b) The other triangle has side lengths 11, 16, and 7.
Compute the sum of the squares of the shorter lengths. $7^2 + 24^2 =$ _____	Compute the sum of the squares of the shorter lengths. $7^2 + 11^2 =$ _____
Compute the square of the longest length. $25^2 =$ _____	Compute the square of the longest length. $16^2 =$ _____
What kind of triangle is it?	What kind of triangle is it?
○ Acute triangle	○ Acute triangle
○ Right triangle	○ Right triangle
○ Obtuse triangle	○ Obtuse triangle

Question 22 of 40

Calculate the distance between the points $K=(-7,\ 8)$ and $H=(-1,\ 3)$ in the coordinate plane.

Round your answer to the nearest hundredth.



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Question 23 of 40

In each figure below, the segments on the sides can be moved.
Create the following triangles, if possible.

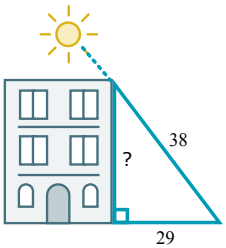
First figure: A triangle with side lengths of 2, 2, and 9.

Second figure: A triangle with side lengths of 5, 7, and 8.

If there is no triangle possible with the given side lengths, click on "No triangle possible".

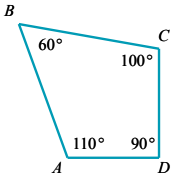
Question 24 of 40

The length of a shadow of a building is 29 m. The distance from the top of the building to the tip of the shadow is 38 m. Find the height of the building. If necessary, round your answer to the nearest tenth.



Question 25 of 40

Classify the four angles of the quadrilateral.



	Right	Acute	Obtuse
$\angle A$			
$\angle B$			
$\angle C$			
$\angle D$			

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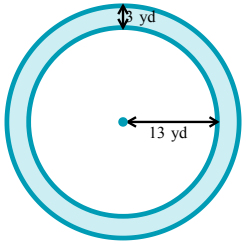
Question 26 of 40

A ring-shaped region is shown below.
Its inner radius is 13 yd. The width of the ring is 3 yd.



Find the area of the shaded region.
Use 3.14 for π. Do not round your answer.

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Question 27 of 40

The circle below is divided into equal slices.
The figure to the right of the circle shows the slices rearranged.

As the number of slices increases, the rearranged figure more closely resembles a parallelogram.
For this problem, we will assume that the final rearranged figure is a parallelogram.
(We will refer to this parallelogram with quotes in the statements below.)

Suppose the circle has radius $r = 7$ cm.
Answer the following.
When applicable, use the symbol π for your answers. (Do not give decimal answers.)

Part 1:
The length of the base of the "parallelogram" is {equal to, twice, half} the circumference of the circle.

The circumference of the circle is _____cm.

So, the length of the base of the "parallelogram" is $b =$ _____cm.

Part 2:
The height of the "parallelogram" is {equal to, twice, half} the radius of the circle.
So, the height of the "parallelogram" is $h =$ _____cm.

Part 3:
Use the parts above to find the area of the "parallelogram".

Area of "parallelogram" = _____cm^2

Part 4:
The circle was rearranged to make the "parallelogram".
So the area of the circle is equal to the area of the "parallelogram".
Using this fact, choose the equation that gives the area of the circle in terms of r.

- ○ Area $= 14\pi r^2$
- ○ Area $= \pi r$
- ○ Area $= \pi r^2$
- ○ Area $= 7\pi r^2$
- ○ Area $= 49\pi r$

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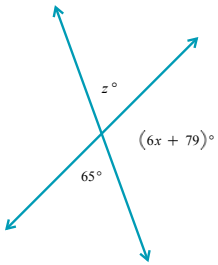
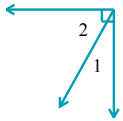
Question 28 of 40

Given the figure below, find the values of x and z.



Question 29 of 40

In the figure, $m\angle 1 = (x - 12)°$ and $m\angle 2 = (5x)°$.



(a) Write an equation to find x. Make sure you use an "=" sign in your answer.

Equation:

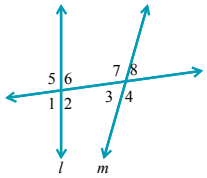
(b) Find the degree measure of each angle.

$m\angle 1 =$ _____°

$m\angle 2 =$ _____°

Question 30 of 40

Give one pair of vertical angles and one pair of supplementary angles shown in the figure below.



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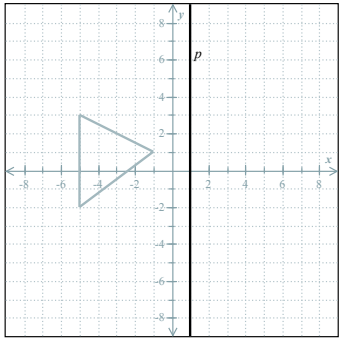
Question 31 of 40

In the coordinate plane, the points $A(-1,\ 5)$, $B(10,\ -3)$, and $C(4,\ 2)$ are reflected over the x-axis to the points A', B', and C', respectively. What are the coordinates of A', B', and C'?

A'(___, ___)
B'(___, ___)
C'(___, ___)

Question 32 of 40

Draw the reflection of the following triangle over the line p.



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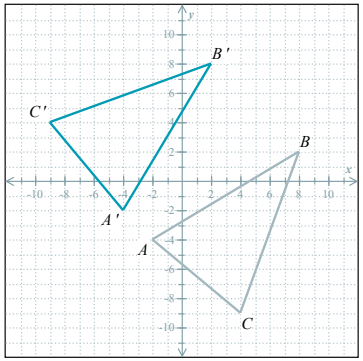
Question 33 of 40

Triangle ABC is reflected across the line $y=x$.
The result is $\triangle A'B'C'$, as shown below.



(a)The arrows below show that the coordinates on the left are mapped to the coordinates on the right. Fill in the blanks to give the coordinates after the reflection.

original coordinates → final coordinates

$A(-2,\ -4) \rightarrow A'$(_____, _____)
$B(8,\ 2) \rightarrow B'$(_____, _____)
$C(4,\ -9) \rightarrow C'$(_____, _____)

(b) Choose the general rule below that describes the reflection mapping $\triangle ABC$ to $\triangle A'B'C'$.

- $(x, y) \rightarrow (x, -y)$
- $(x, y) \rightarrow (-x, y)$
- $(x, y) \rightarrow (-x, -y)$
- $(x, y) \rightarrow (y, -x)$
- $(x, y) \rightarrow (y, x)$
- $(x, y) \rightarrow (-y, x)$
- $(x, y) \rightarrow (-y, -x)$

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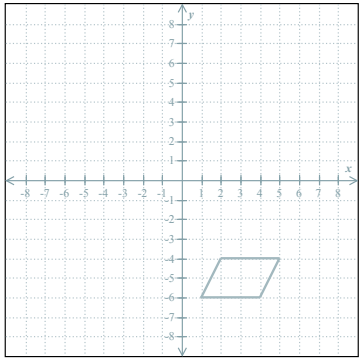
Question 34 of 40

Translate the figure 9 units up. Then decide if each statement about translated figures is true or false.



Statement about translated figures	True	False
The final side lengths are shorter than the original side lengths.	○	○
The final angle measures are larger than the original angle measures.	○	○
The original figure and the final figure are congruent.	○	○
If two sides are parallel in the original figure, then those sides may *not* be parallel in the final figure.	○	○

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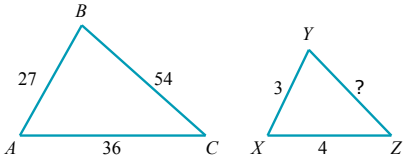
$\triangle ABC$ and $\triangle XYZ$ are similar. Find the missing side length.



(The triangles are not drawn to scale.)

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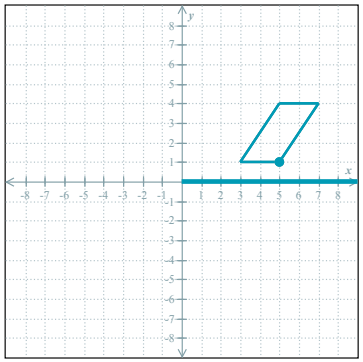
The figure below has a point marked with a large dot.
First, rotate the figure $90°$ counterclockwise about the origin.
Then, give the coordinates of the marked point in the original figure and the final figure.



Point in original figure:
Point in final figure:

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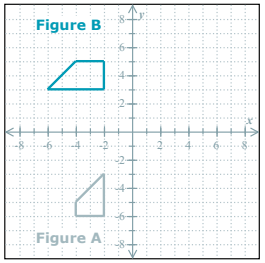
Answer each question below.

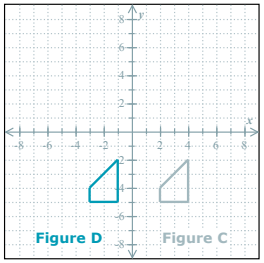


Are Figure A and Figure B congruent?

- Yes
- No

Which transformation will map Figure A onto Figure B exactly?

- Translate Figure A to the right 2 units
- Translate Figure A up 2 units
- Reflect Figure A over the x-axis
- Reflect Figure A over the y-axis
- Rotate Figure A clockwise $180°$ about the origin
- Rotate Figure A counterclockwise $90°$ about the origin
- None of these



Are Figure C and Figure D congruent?

- Yes
- No

Which transformation will map Figure C onto Figure D exactly?

- Translate Figure C to the left 5 units
- Translate Figure C down 5 units
- Reflect Figure C over the x-axis
- Reflect Figure C over the y-axis
- Rotate Figure C clockwise $90°$ about the origin
- Rotate Figure C counterclockwise $180°$ about the origin
- None of these

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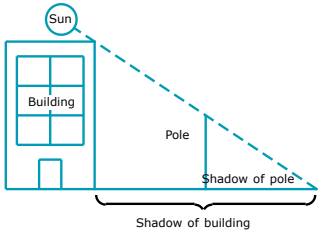
A woman wants to measure the height of a nearby building. She places a 9 ft pole in the shadow of the building so that the shadow of the pole is exactly covered by the shadow of the building. The total length of the building's shadow is 188 ft, and the pole casts a shadow that is 5.75 ft long. How tall is the building? Round your answer to the nearest foot. (The figure is not drawn to scale.)



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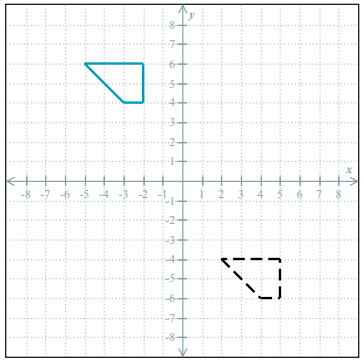
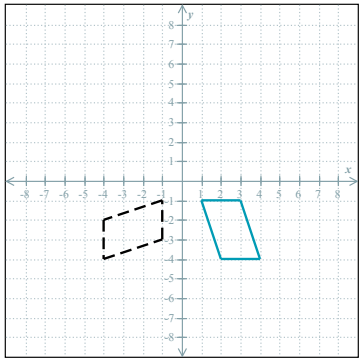
In each part, translate the solid figure exactly onto the dashed figure.

If this is not possible, click on "Not possible".

(a)



(b)



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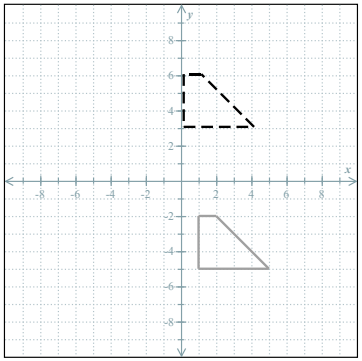
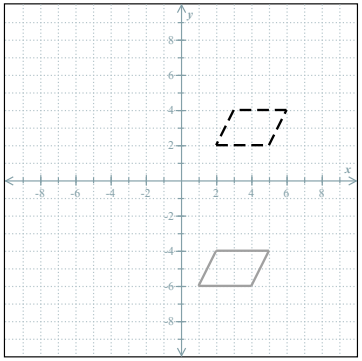
In each part, rotate the solid figure about the origin exactly onto the dashed figure.

If this is not possible, click on "Not possible".

(a)



(b)



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