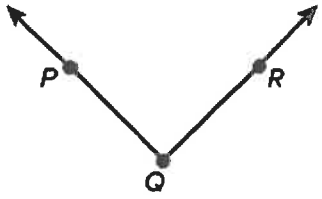
Geometry Midterm Review 25-26

Name: _____

1. MA.912.GR.1.1 (Prerequisite)

Consider $\angle Q$.

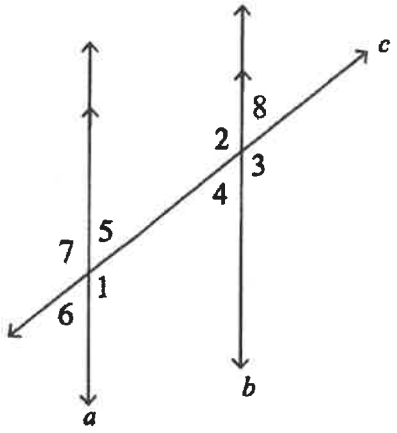


Which statement about the angle cannot be assumed from the diagram?

$\angle Q$ is a right angle
The vertex of the angle is point Q
The sides of $\angle Q$ are $\overrightarrow{QP}$ and $\overrightarrow{QR}$
Other names of the angle are $\angle PQR$ and $\angle RQP$

2. MA.912.GR.1.1 (Level 2)

In the image, $m \parallel n$. The $m\angle 6 = 67°$.



Which statements are true? **Select all that apply**.

$\angle 6$ and $\angle 7$ are vertical angles that each measure 67°.

$\angle 5$ and $\angle 6$ are vertical angles that each measure 67°.

$\angle 4$ and $\angle 6$ are corresponding angles that each measure 67°.

$\angle 4$ and $\angle 7$ are corresponding angles that each measure 67°.

$\angle 3$ and $\angle 5$ are alternate interior angles that each measure 113°.

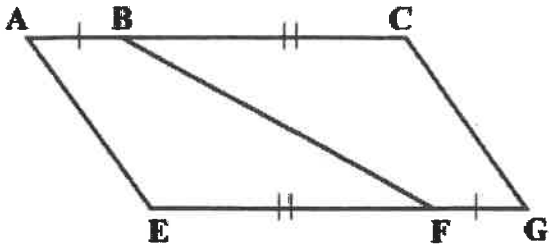
$\angle 3$ and $\angle 7$ are alternate exterior angles that each measure 113°.

$\angle 4$ and $\angle 5$ are consecutive interior angles that measure 67° and 113°, respectively.

3. **MA.912.GR.1.1 (Level 3)**

Use the word banks below to complete the paragraph proof.

Given: $\overline{AB} \cong \overline{FG}$; $\overline{BC} \cong \overline{EF}$
Prove: $\overline{AC} \cong \overline{EG}$



We are given that $\overline{AB} \cong \overline{FG}$ and $\overline{BC} \cong \overline{EF}$.

$AB = FG$ and $BC = EF$ by the definition of congruence.

By the 1, $AB + BC = AC$ and $EF + FG = EG$.

By the substitution property of equality, $AB + BC = EG$.

By the 2 of equality, $AC = EG$; therefore, by the definition of congruence, $\overline{AC} \cong \overline{EG}$.

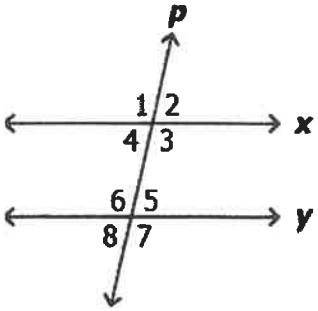
Blank #1	Blank #2
angle addition postulate	substitution property
segment addition postulate	addition property
definition of complementary angles	reflexive property
definition of supplementary angles	symmetric property

4. **MA.912.GR.1.1 (Level 4**

In the figure, parallel lines x and y are cut by transversal p. Complete the proof below.

Given: $x \parallel y$

Prove: $\angle 4 \cong \angle 5$



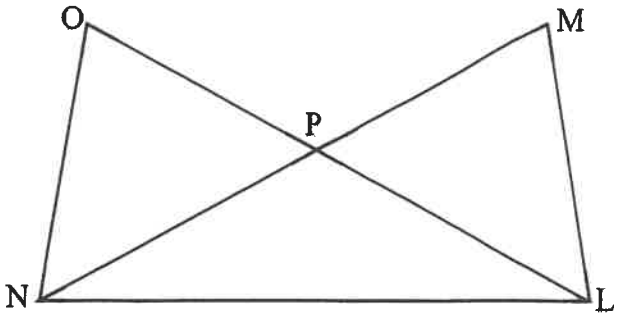
Statements	Reasons
1. $x \parallel y$	1. Given
2. $m\angle 3 + m\angle 4 = 180°$	2. **Circle One:** • Two angles forming a linear pair are supplementary. • Definition of a linear pair • Consecutive interior angles are supplementary. • Alternate interior angles are congruent.
3. $m\angle 3 + m\angle 5 = 180°$	3. **Circle One:** • Two angles forming a linear pair are supplementary. • Definition of a linear pair • Consecutive interior angles are supplementary. • Alternate interior angles are congruent.
4. **Circle One**: • $m\angle 3 + m\angle 5 = 2 \cdot m\angle 3$ • $m\angle 4 + m\angle 5 = 180°$ • $m\angle 3 + m\angle 4 = m\angle 3 + m\angle 5$ • $m\angle 3 + m\angle 4 = 2 \cdot m\angle 3$	4. Substitution Property of Equality
5. $m\angle 4 = m\angle 5$	5. Subtraction Property of Equality
6. $\angle 4 \cong \angle 5$	6. **Circle One:** • Symmetric property of equality. • Definition of congruent • Reflexive property of congruence

5. See Performance Matters Questionnaire

6. MA.912.GR.1.2 (Level 2)

Fill in the blank using the available answer choices.

Given: $\overline{LM} \cong \overline{NO}$; $\overline{LO} \cong \overline{NM}$
Prove: $\Delta LON \cong \Delta NML$

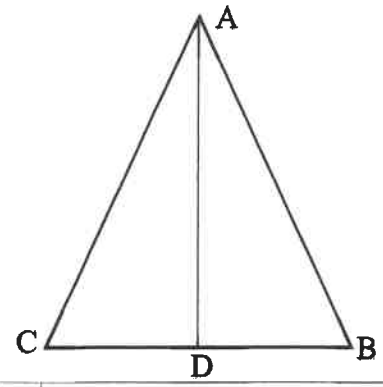


Statements	Reasons
1. $\overline{LM} \cong \overline{NO}$; $\overline{LO} \cong \overline{NM}$.	1. Given
2. $\overline{LN} \cong \overline{LN}$	2. Reflexive Property of Congruence
3. $\Delta LON \cong \Delta NML$	3. **Circle One:** • Side-Side-Side (SSS) • Side-Angle-Side (SAS) • Angle-Side-Angle (ASA) • Angle-Angle-Side (AAS) • Hypotenuse-Leg (HL)

7. MA.912.GR.1.2 (Level 3)

Fill in the blank using the available answer choices.

Given: $\overline{AD}$ bisects $\angle CAB$; $\overline{AC} \cong \overline{AB}$
Prove: $\angle B \cong \angle C$



1. $\overline{AD}$ bisects $\angle CAB$	1. Given
2. $\angle CAD \cong \angle BAD$	2. **Circle one**: • Definition of Angle Bisector • Definition of Segment Bisector • Angle Addition Postulate • Segment Addition Postulate • Vertical Angles are Congruent
3. $\overline{AC} \cong \overline{AB}$	3. Given
4. $\overline{AD} \cong \overline{AD}$	4. Reflexive Property of Congruence
5. $\Delta CAD \cong \Delta BAD$	5. **Circle one**: • Side-Side-Side (SSS) • Side-Angle-Side (SAS) • Angle-Side-Angle (ASA) • Angle-Angle-Side (AAS) • Hypotenuse-Leg (HL)
6. $\angle B \cong \angle C$	6. Corresponding parts of congruent triangles are congruent (CPCTC)

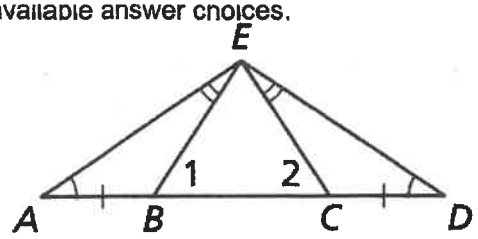
8. Fill in the blank using the available answer choices.

MA.912.GR.1.2 (Level 4)

Given:

- $\angle A \cong \angle D$
- $\overline{AB} \cong \overline{CD}$
- $\angle AEB \cong \angle DEC$

Prove: $\angle 1 \cong \angle 2$

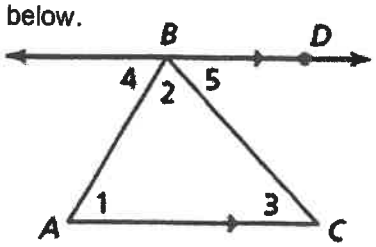


1. $\angle A \cong \angle D$	1. Given
2. $\overline{AB} \cong \overline{CD}$	2. Given
3. $\angle AEB \cong \angle DEC$	3. Given
4. **Circle one**: • $\Delta AEB \cong \Delta DEC$ • $\Delta ABE \cong \Delta DEC$ • $\Delta AEC \cong \Delta DEB$	4. **Circle one**: • Side-Side-Side (SSS) • Side-Angle-Side (SAS) • Angle-Side-Angle (ASA) • Angle-Angle-Side (AAS) • Hypotenuse-Leg (HL)
5. $\overline{BE} \cong \overline{CE}$	5. **Circle one**: • Corresponding parts of congruent triangles are congruent (CPCTC) • Reflexive Property of Congruence • Transitive Property of Congruence • Consecutive interior angles are congruent.
6. ΔBEC is a(n) • scalene triangle. • isosceles triangle. • equilateral triangle.	6. Definition of a(n) • scalene triangle. • isosceles triangle. • equilateral triangle.
7. $\angle 1 \cong \angle 2$	7. **Circle one**: • If a triangle is equilateral, then all the interior angles are congruent. • If a triangle is isosceles, then the base angles are congruent. • If a triangle is scalene, then two angles are congruent.

9.

MA.912.GR.1.3 (Prerequisite)

Consider the figure below.



Select the incorrect statement(s) about the angles below. **Select all that apply**.

A. $m\angle 1 + m\angle 2 + m\angle 3 = 180°$
B. $m\angle 2 + m\angle 4 + m\angle 5 = 180°$
C. $m\angle 5 = m\angle 1 + m\angle 3$
D. $m\angle 1 = m\angle 4$
E. $m\angle 3 = m\angle 5$
F. $\angle 4$ and $\angle 5$ are exterior angles of ΔABC.

MA.912.GR.1.3 (Level 2)

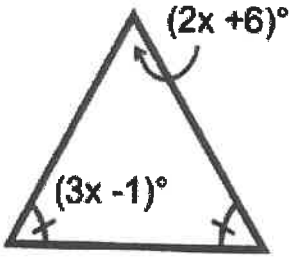
10. Two interior angles of a triangle measure 32° and 64°.

What is the measure of the third interior angle of the triangle?

- $m\angle 3 =$ _____ °

11. **MA.912.GR.1.3 (Level 3)**

The angle measures of the triangle are shown.



The value of x is:

A. 2
B. 16.6
C. 22
D. 23

The triangle has angle measures of:

A. $50°, 65°, 65°$
B. $50°, 50°, 65°$
C. $44°, 68°, 68°$
D. $44°, 44°, 68°$

12. **MA.912.GR.1.3 (Level 4)**

A welder has two metal bars that measure 5 feet and 8 feet long. She needs to buy a third bar to weld to the other two to form a triangle for an art display. Which of the lengths of bars could she buy? Select all that apply.

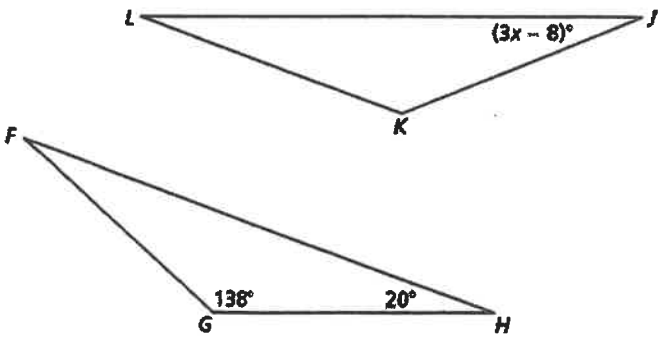
A. 13 ft.
B. 12 ft.
C. 10 ft.
D. 6 ft.
E. 4 ft.
F. 3 ft.

13. **MA.912.GR.1.6 (Prerequisite)**

In the figure below $\Delta FGH \cong \Delta JKL$.

Find the value of x.

- $x =$ _____ °

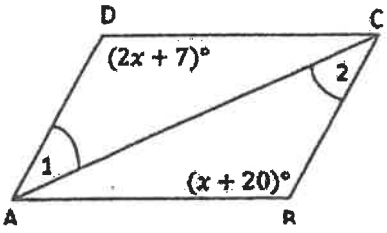


14. **MA.912.GR.1.6 (Level 3)**

In the figure given, $\overline{AD} \cong \overline{BC}$ *and* $\angle 1 \cong \angle 2$.

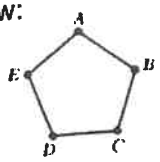
Find $m\angle B$.

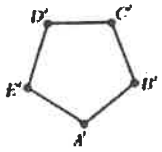
- $m\angle B =$ _____ °



MA.912.GR.2.1 (Prerequisite)

15. Consider the figure below:





A. A vertical translation
B. A reflection about the line m
C. A rotation with point of rotation in line m.

Determine the transformation from the preimage above line m to the image below line m.

16. **MA.912.GR.2.1 (Level 2)**

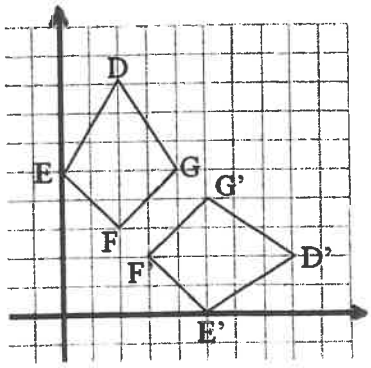
The coordinates of the image of a point with coordinates $(-2,6)$ is $(-4,13)$.

Use the table to complete the transformation rule.

	+, −	0, 1, 2, 3, 4, 5, 6, 7, 8, 9		+, −	0, 1, 2, 3, 4, 5, 6, 7, 8, 9	
$(x, y) \rightarrow (x$			$, y$			$)$

17. **MA.912.GR.2.1 (Level 3)**

$DEFG$ goes through a transformation that results in $D'E'F'G'$ as shown.



Which of the following statements correctly describes a transformation that maps $DEFG$ onto $D'E'F'G'$?

Select all that apply.

A translation right one and down one

A translation left five and up five

A rotation 90° clockwise about the origin

A reflection in the line $y = x$

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

$(x, y) \rightarrow (x + 5, y + 5)$

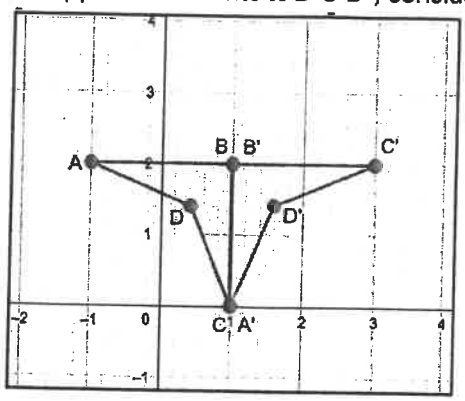
$(x, y) \rightarrow (y, -x)$

$(x, y) \rightarrow (x - 1, y - 1)$

18.

MA.912.GR.2.1 (Level 4)

A single rotation mapped $ABCD$ onto $A'B'C'D'$, consider the graph below.



Part A: The center of rotation is (the origin, point A, point B, point C, point D)

Part B: If the rotation is counterclockwise, the measure of the angle of rotation is ($90°$, $180°$, $270°$)

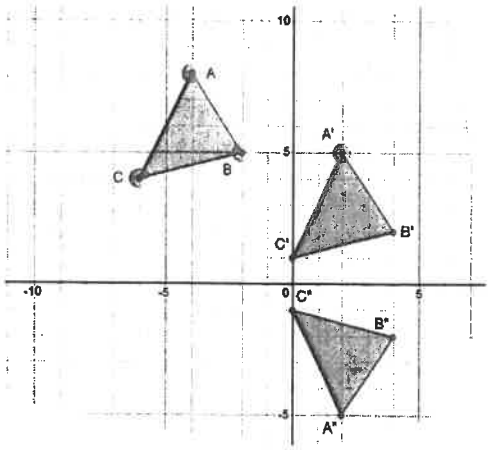
Part C: This transformation can be described algebraically as:

A. $(x, y) \rightarrow (3 - y, x + 1)$
B. $(x, y) \rightarrow (-y, x)$
C. $(x, y) \rightarrow (x - 1, y - 2)$
D. $(x, y) \rightarrow (3 - x, y + 1)$

19.

MA.912.GR.2.3 (Prerequisite)

Which sequence of transformations maps ΔABC onto $\Delta A"B"C"$?



A. Reflect in the x −axis, then translate right 6 down 3.

B. Translate right 6 down 3, then reflect in the x −axis.

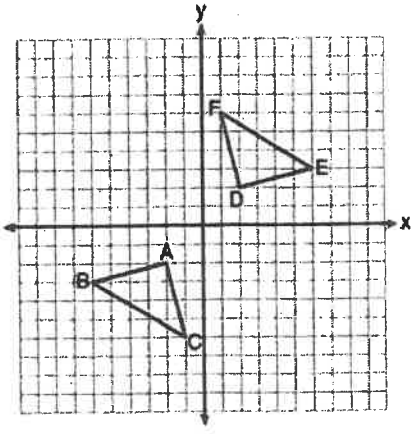
C. Reflect in the y −axis, then translate 3 units up 6 left.

D. Translate 13 units down, then reflect in the y −axis.

20.

MA.912.GR.2.3 (Level 2)

Which sequences of transformations map ΔABC onto ΔDEF?



A. Reflect in the x −axis, then reflect in the y −axis.

B. Reflect in the x −axis, then translate 4 units right.

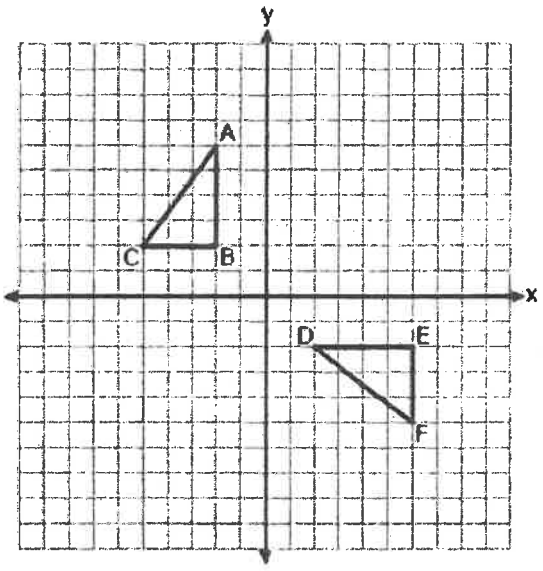
C. Reflect in the y −axis, then translate 4 units up.

D. Translate 4 units up, then reflect in the y −axis.

21.

MA.912.GR.2.3 (Level 3)

Which sequences of transformations map ΔABC onto ΔDEF?



A. Step 1: $(x, y) \rightarrow (-y, x)$
Step 2: $(x, y) \rightarrow (x + 8, y)$

B. Step 1: $(x, y) \rightarrow (-y, x)$
Step 2: $(x, y) \rightarrow (-x, y)$

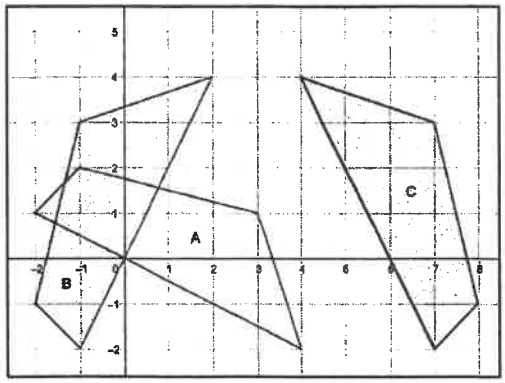
C. Step 1: $(x, y) \rightarrow (-y, x)$
Step 2: $(x, y) \rightarrow (x, y - 4)$

D. Step 1: $(x, y) \rightarrow (-y, x)$
Step 2: $(x, y) \rightarrow (x, -y)$

22.

MA.912.GR.2.3 (Level 4)

What sequence of transformations maps A to B to C.



A. A reflection about the line $x = 3$, then a 90° counterclockwise rotation about the origin.

B. A 90° clockwise rotation about the origin, then a translation right 2.

C. A 90° counterclockwise rotation about the origin, then a reflection about the line $x = 3$.

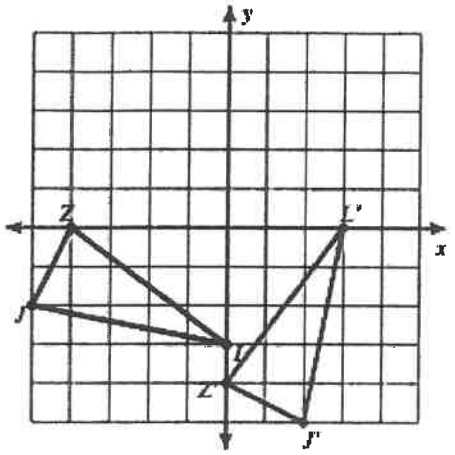
D. A reflection about the $y -$ axis, then a reflection about the line $x = 3$.

23.

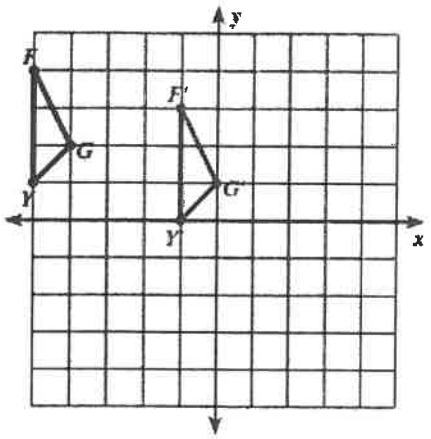
MA.912.GR.2.5 (Prerequisite)

Given the figure on the coordinate plane below, which graph shows the correct transformation of a reflection of the figure in the x –axis?

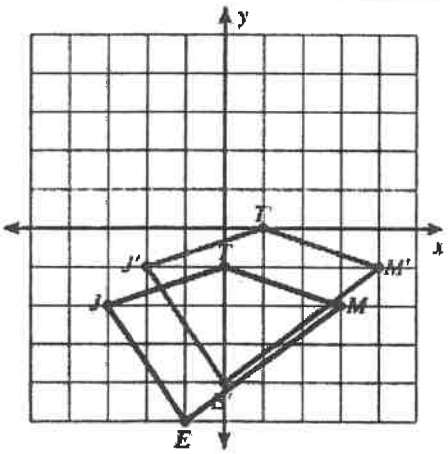
A.



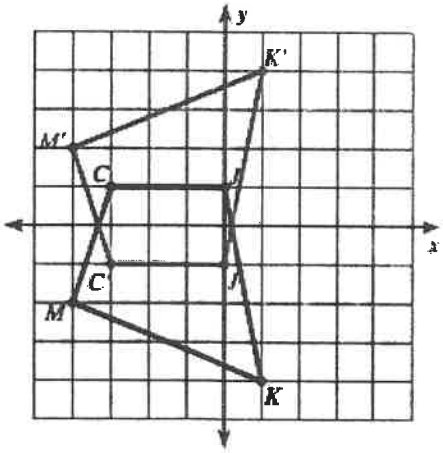
C.



B.



D.



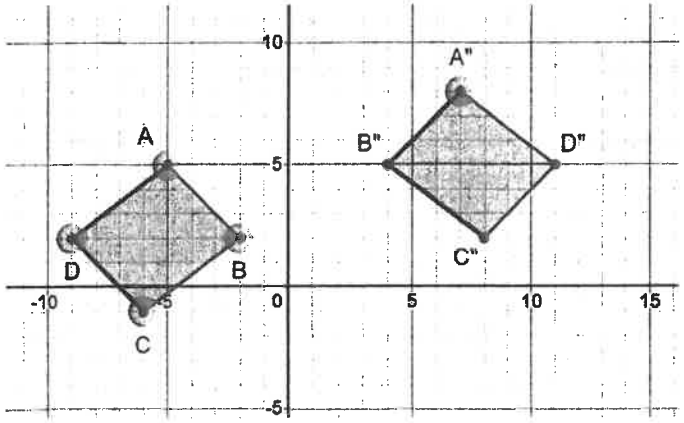
24.

MA.912.GR.2.5 (Level 2)

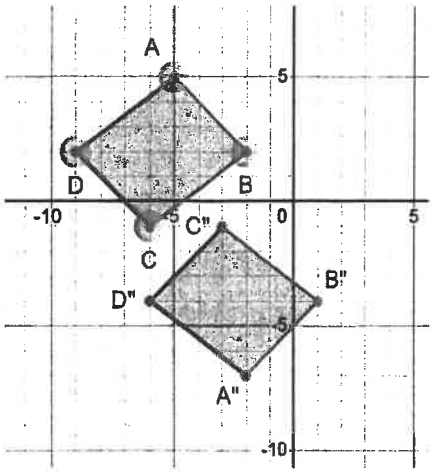
Given the figure on the coordinate plane below, which graph shows the correct sequence of transformations as follows:

1. A reflection about the $y-$ axis
2. A translation 3 units right and 2 units up

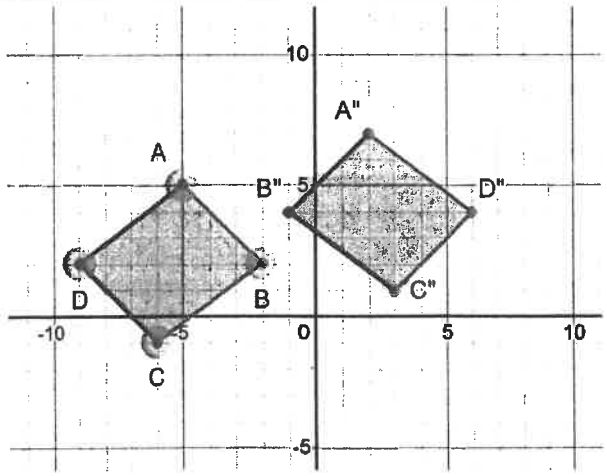
A.



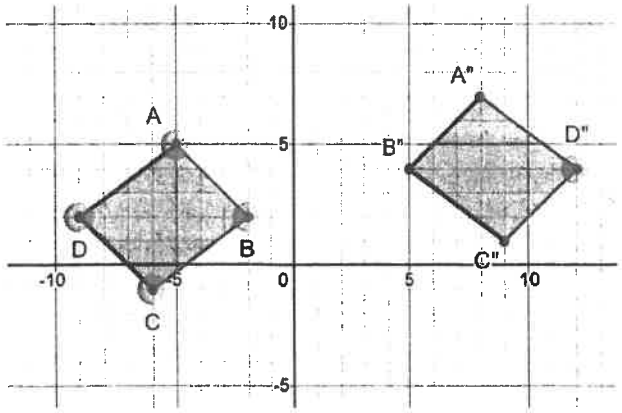
C.



B.



D.



25.

MA.912.GR.3.2 (Level 3)

Given ΔJKL with vertices $J(0,\ 1)$, $K(7,\ 0)$, and $L(5,\ 6)$, classify the triangle. **Select all that apply**.

Acute

Obtuse

Right

Equilateral

Isosceles

Scalene

26.

MA.912.GR.3.2 (Level 4)

If ΔPQR is an isosceles triangle with vertices $P(4,-2), Q(5,5)$, and $R(-1,k)$, then what is the smallest possible value of k?

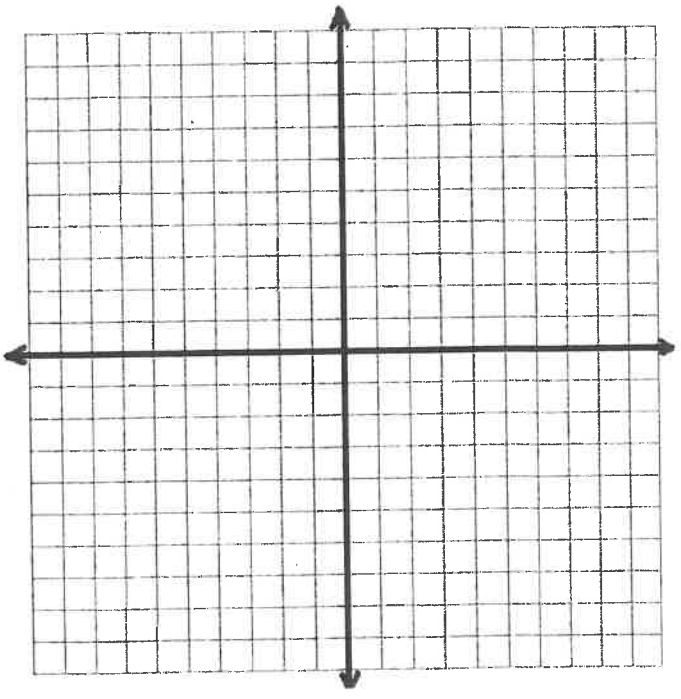
- The smallest possible value of k is (-9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9)

27.

MA.912.GR.3.3 (Prerequisite)

Graph and label the following points on the given coordinate plane provided.

- $F(-1,6)$
- $S(4,0)$
- $U(-5,-4)$
- $N(3,4)$



MA.912.GR.3.3 (Level 2)

28. The endpoints of $\overline{CD}$ are given below. Find the coordinates of the midpoint M.

- $C(-2,7)$
- $D(4,11)$

A. $(1, 9)$

B. $(-1, 9)$

C. $(1, -9)$

D. $(-1, -9)$

MA.912.GR.3.3 (Level 3)

29. Point M is the midpoint of $\overline{AB}$. Find the coordinates of point B.

- $A(3,-2)$
- $M(6,4)$

Point B is located at ((0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10) , (0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10))

MA.912.GR.3.3 (Level 4)

30. Your school is 4 miles east and 1 mile south of your apartment. A recycling center, where your class is going to take a field trip, is 2 miles eat and 3 miles north of your apartment. Determine the distance between the recycling center and your school, round your answer to the nearest tenth.

- The distance is about _____ miles

MA.912.LT.4.3 (Prerequisite)

31. Consider the following statements:

- Hypothesis: Sydney has geometry class 8th period
- Conclusion: Sydney needs an energy drink

Identify the appropriate conditional statement written with the given hypothesis and conclusion.

A. If Sydney needs an energy drink, then her geometry class is 8th period.
B. If Sydney has geometry class 8th period, then she needs and energy drink.
C. Sydney has geometry class 8th period, therefore she needs an energy drink.
D. If Sydney does not have geometry class 8th period, then she needs an energy drink.

MA.912.LT.4.3 (Level 2)

32. Identify the hypothesis of the following conditional statement.

If Renegade (the FSU Mascot) is at a football game, then the Seminoles have home field advantage.

A. The Seminoles do not have home field advantage.

B. Renegade is the FSU Mascot.

C. Renegade (the FSU Mascot) is at a football game.

D. The Seminoles have home field advantage.

MA.912.LT.4.3 (Level 3)

33. Identify the inverse of the following conditional statement:

If two angles are vertical, then they are not adjacent.

A. If two angles are not vertical, then they are adjacent.

B. If two angles are adjacent, then they are not vertical.

C. If two angles are not adjacent, then they are vertical.

D. If two angles are not vertical, then they are not adjacent.

MA.912.LT.4.3 (Level 4)

34. Identify the contrapositive of the following conditional statement.

If two angles are a linear pair, then they are adjacent.

A. If two angles are not a linear pair, then they are not adjacent.

B. If two angles are adjacent, then they are a linear pair.

C. If two angles are adjacent, then they are not a linear pair.

D. If two angles are not adjacent, then they are not a linear pair.

MA.912.LT.4.10 (Prerequisite)

35. Determine if the following statement is valid: If three angles add up to 180°, then one angle must be obtuse.

- The statement is (valid, not valid).

MA.912.LT.4.10 (Level 2)

36. Which of the following statements about parallel lines cut by a transversal is valid?

A. Alternate interior angles are supplementary.

B. Corresponding angles are congruent.

C. Alternate exterior angles are complementary.

D. Consecutive (or same-side) interior angles are supplementary.

MA.912.LT.4.10 (Level 3)

37. Michaela claims that a triangle with sides measuring 3 centimeters and 4 centimeters must have a third side measuring 5 centimeters.

Which of the following possible third side lengths can be used as a counterexample to her statement?

Select all that apply.

2 centimeters

3 centimeters

5 centimeters

6 centimeters

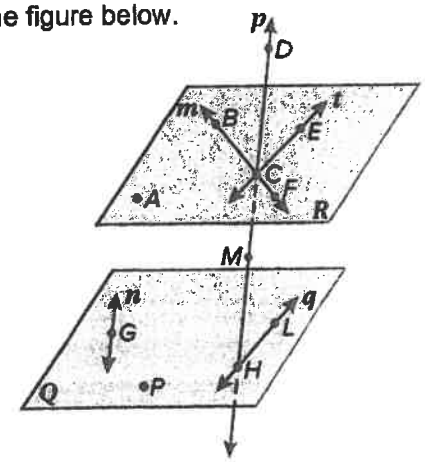
7 centimeters

8 centimeters

38.

MA.912.LT.4.10 (Level 4)

Consider the figure below.



Fill in the table below by determining if the given statement is valid, if not, select the appropriate counterexample.

Statement	Validity	Counterexample, if necessary
Two intersecting lines must lie on the same plane.	(Valid, Not Valid)	(Lines t & m, Lines p & q, Lines q & n, valid statement – not necessary)
Through any two points exist only one line.	(Valid, Not Valid)	(Points B & C, Points D & H, Points E & C, valid statement – not necessary)
A plane contains at least three non-collinear points.	(Valid, Not Valid)	(Plane R, Plane Q, valid statement – not necessary)