

Chapter 4 Midterm Exam Review

Multiple Choice

Identify the choice that best completes the statement or answers the question.

Refer to Figure 1.

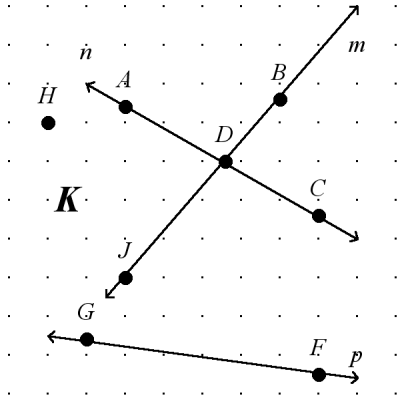
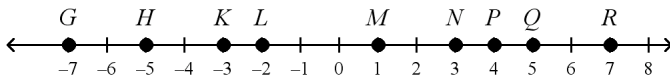


Figure 1

- _____ 1. Name a line that contains point A .
- | | |
|------------------------------|-----------------|
| a. \overleftrightarrow{DC} | c. \mathbf{K} |
| b. m | d. DB |
- _____ 2. Name a point NOT contained in \overleftrightarrow{AD} or \overleftrightarrow{FG} .
- | | |
|-----------------|--------|
| a. \mathbf{K} | c. H |
| b. A | d. D |
- _____ 3. Find the value of the variable and GH if H is between G and I .
- $GI = 5b + 1, HI = 4b - 5, HI = 7$
- | | |
|--------------------------|---------------------|
| a. $b = 1.2, GH = 6.8$ | c. $b = 3, GH = 9$ |
| b. $b = 1.22, GH = 7.11$ | d. $b = 3, GH = 16$ |

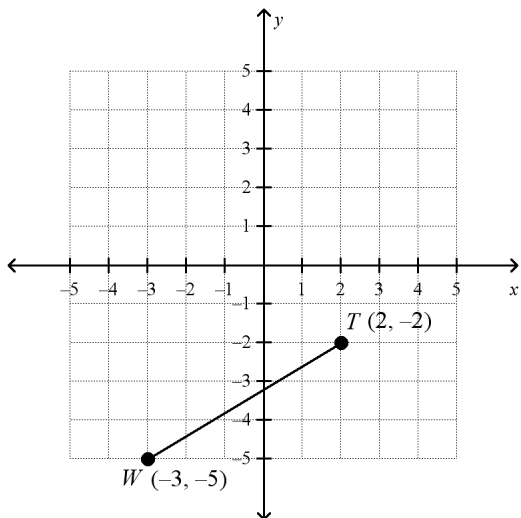
Use the number line to find the measure.



- _____ 4. PH
- | | |
|--------|---------|
| a. 4.5 | c. 9 |
| b. 8 | d. -0.5 |

Use the Distance Formula to find the distance between each pair of points.

_____ 5.



a. $\sqrt{50}$

b. 4

c. $\sqrt{34}$

d. 6

_____ 6. The measure of an angle's supplement is 24 less than twice the measure of the angle. Find the measure of the angle and its supplement.

a. 38, 52

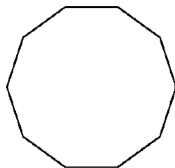
b. 52, 38

c. 68, 112

d. 112, 68

Name each polygon by its number of sides.

_____ 7.



a. decagon

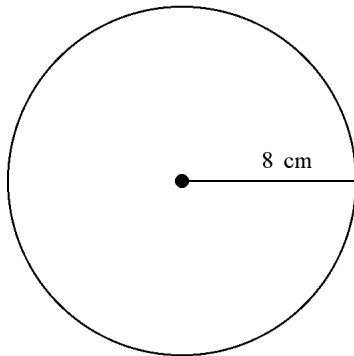
b. dodecagon

c. nonagon

d. octagon

Find the circumference of the figure.

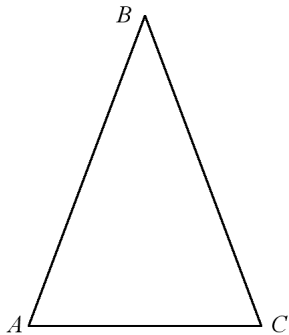
_____ 8.



- a. 8π cm
- b. 16π cm
- c. 4π cm
- d. 64π cm

Determine whether the conjecture is true or false. Give a counterexample for any false conjecture.

_____ 9. **Given:**



Conjecture: $\angle BCA \cong \angle BAC$

- a. False; the angles are not vertical.
- b. True
- c. False; the angles are not complementary.
- d. False; there is no indication of the measures of the angles.

Name: _____

ID: A

Use the following statements to write a compound statement for the conjunction or disjunction. Then find its truth value.

p: An isosceles triangle has two congruent sides.

q: A right angle measures 90°

r: Four points are always coplanar.

s: A decagon has 12 sides.

_____ 10. $q \wedge p$

- a. A right angle measures 90° or an isosceles triangle has two congruent sides; true.
- b. A right angle measures 90° and an isosceles triangle has two congruent sides; true.
- c. A right angle measures 90° and an isosceles triangle does not have two congruent sides; false.
- d. A right angle measures 90° or an isosceles triangle does not have two congruent sides; true.

Name: _____

ID: A

Complete the truth table.

----- 11.

p	q	r	$\sim q$	$r \wedge \sim q$
T	T	T		
T	T	F		
T	F			
T	F			
F				
F				
F				
F				

a.

p	q	r	$\sim q$	$r \wedge \sim q$
T	T	T	F	F
T	T	F	F	F
T	F	T	T	T
T	F	F	T	F
F	T	T	F	F
F	T	F	F	F
F	F	T	T	T
F	F	F	T	F

b.

p	q	r	$\sim q$	$r \wedge \sim q$
T	T	T	F	F
T	T	F	F	F
T	F	T	T	T
T	F	F	T	F
F	T	T	F	F
F	T	F	F	T
F	F	T	T	F
F	F	F	T	F

c.

p	q	r	$\sim q$	$r \wedge \sim q$
T	T	T	F	F
T	T	F	F	F
T	T	T	F	F
T	T	F	T	F
F	F	T	T	T
F	F	F	T	F
F	F	T	T	T
F	F	F	T	F

d.

p	q	r	$\sim q$	$r \wedge \sim q$
T	T	T	F	F
T	T	F	F	F
T	F	T	T	T
T	F	F	T	F
F	T	T	F	F
F	T	F	F	F
F	F	T	T	F
F	F	F	T	F

Write the converse of the conditional statement. Determine whether the converse is true or false. If it is false, find a counterexample.

- _____ 12. If you have a dog, then you are a pet owner.
- If you are a pet owner, then you have a dog. True
 - A dog owner owns a pet. True
 - If you are a pet owner, then you have a dog. False; you could own a hamster.
 - If you have a dog, then you are a pet owner. True

Write the inverse of the conditional statement. Determine whether the inverse is true or false. If it is false, find a counterexample.

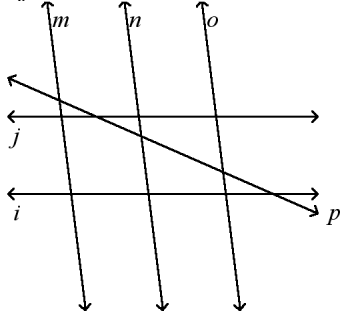
- _____ 13. Independence Day in the United States is July 4.
- July 4 is not Independence Day in the United States. False; it is Independence Day.
 - Non-Independence Day in the United States is not July 4. True
 - Non-Independence Day in the United States is July 4. False; July 4 is Independence Day in the United States.
 - Non-July 4 is not Independence Day in the United States. True

Determine whether statement (3) follows from statements (1) and (2) by the Law of Detachment or the Law of Syllogism. If it does, state which law was used. If it does not, write invalid.

- _____ 14. (1) She is a girl.
 (2) Her name is Chris.
 (3) Chris is a girl's name.
- invalid
 - yes; Law of Syllogism
 - yes; Law of Detachment

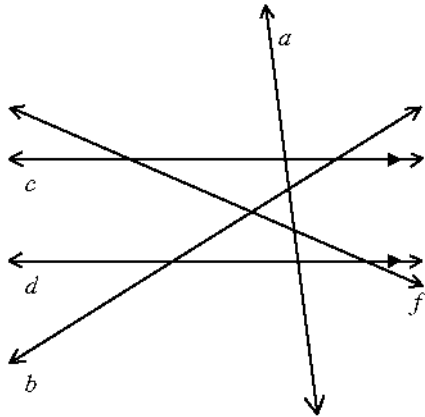
Identify the sets of lines to which the given line is a transversal.

_____ 15. line j



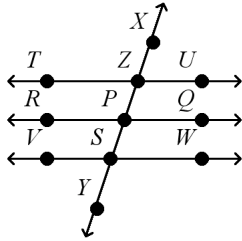
- a. lines m and n , n and o , m and o
- b. lines m and p , n and o
- c. lines i
- d. lines m and n , n and o , m and o , m and p , n and p , o and p

_____ 16. line a



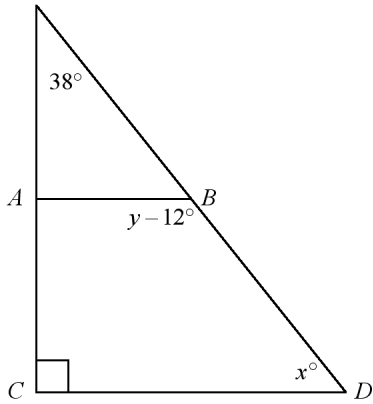
- a. lines c and b , f and d , c and f , c and d , b and d
- b. lines a and b , a and c , a and d , a and f
- c. lines f and d , c and f , c and d , b and d
- d. lines c and b , f and d

_____ 17. In the figure, $m\angle RPZ = 95$ and $\overleftrightarrow{TU} \parallel \overleftrightarrow{RQ} \parallel \overleftrightarrow{VW}$. Find the measure of angle WSP .



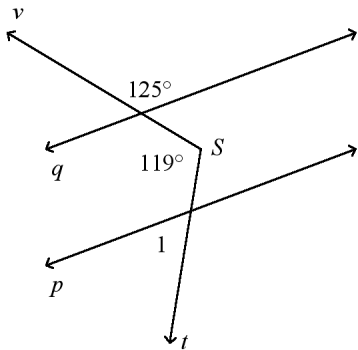
- a. 85
- b. 75
- c. 95
- d. 65

_____ 18. In the figure, $\overline{AB} \parallel \overline{CD}$. Find x and y .



- a. $x = 32, y = 140$
- b. $x = 140, y = 52$
- c. $x = 52, y = 140$
- d. $x = 38, y = 154$

_____ 19. In the figure, $p \parallel q$. Find $m\angle 1$.



- a. $m\angle 1 = 61$
- b. $m\angle 1 = 35$
- c. $m\angle 1 = 55$
- d. $m\angle 1 = 64$

Write an equation in point-slope form of the line having the given slope that contains the given point.

_____ 20. $m = -0.25, (-8, 2)$

a. $y + 8 = -0.25(x - 2)$

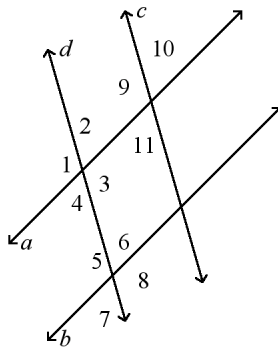
c. $y - 2 = -0.25(x + 8)$

b. $y = -0.25x - 2$

d. $y - 2 = -0.25(x - 8)$

Given the following information, determine which lines, if any, are parallel. State the postulate or theorem that justifies your answer.

_____ 21. $\angle 11 \cong \angle 2$



a. $c \parallel d$; congruent corresponding angles

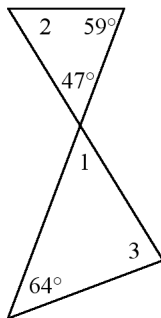
b. $a \parallel b$; congruent corresponding angles

c. $c \parallel d$; congruent alternate interior angles

d. $a \parallel b$; congruent alternate interior angles

Find each measure.

_____ 22. $m\angle 1, m\angle 2, m\angle 3$



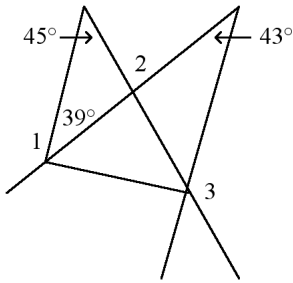
a. $m\angle 1 = 64, m\angle 2 = 74, m\angle 3 = 52$

c. $m\angle 1 = 47, m\angle 2 = 74, m\angle 3 = 69$

b. $m\angle 1 = 64, m\angle 2 = 47, m\angle 3 = 52$

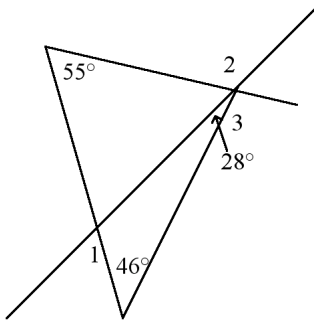
d. $m\angle 1 = 47, m\angle 2 = 59, m\angle 3 = 64$

____ 23. $m\angle 1, m\angle 2, m\angle 3$



- | | |
|---|---|
| a. $m\angle 1 = 135, m\angle 2 = 88, m\angle 3 = 139$ | c. $m\angle 1 = 141, m\angle 2 = 84, m\angle 3 = 139$ |
| b. $m\angle 1 = 135, m\angle 2 = 84, m\angle 3 = 96$ | d. $m\angle 1 = 141, m\angle 2 = 45, m\angle 3 = 141$ |

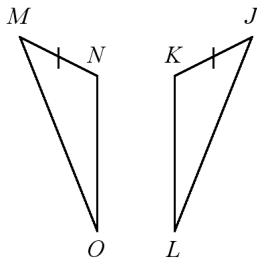
____ 24. $m\angle 1, m\angle 2, m\angle 3$



- | | |
|---|---|
| a. $m\angle 1 = 74, m\angle 2 = 129, m\angle 3 = 101$ | c. $m\angle 1 = 51, m\angle 2 = 101, m\angle 3 = 101$ |
| b. $m\angle 1 = 46, m\angle 2 = 129, m\angle 3 = 129$ | d. $m\angle 1 = 74, m\angle 2 = 152, m\angle 3 = 74$ |

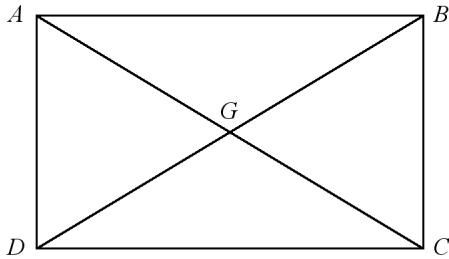
Identify the congruent triangles in the figure.

____ 25.

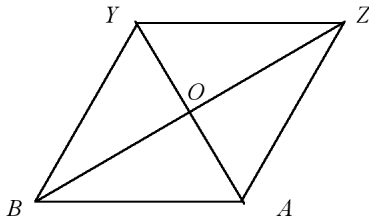


- | | |
|---|--|
| a. $\triangle K LJ \cong \triangle ONM$ | c. $\triangle LJK \cong \triangle OMN$ |
| b. $\triangle KJL \cong \triangle OMN$ | d. $\triangle JKL \cong \triangle ONM$ |

Quadrilateral $ABCD$ is a rectangle.



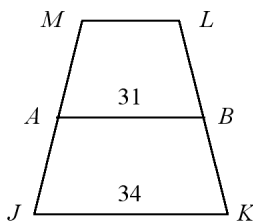
- ____ 29. If $AG = -4k + 24$ and $DG = 9k + 102$, find BD .
- | | |
|-------|-------|
| a. 96 | c. 24 |
| b. -6 | d. 48 |
- ____ 30. If $\angle ADB = 2y + 40$ and $\angle CDB = -3y + 51$, find $\angle CBD$.
- | | |
|-------|-------|
| a. 48 | c. 42 |
| b. 1 | d. 45 |
- ____ 31. In rhombus $YZAB$, if $YZ = 12$, find AB .



- | | |
|-------|-----------------|
| a. 24 | c. 6 |
| b. 12 | d. $12\sqrt{2}$ |

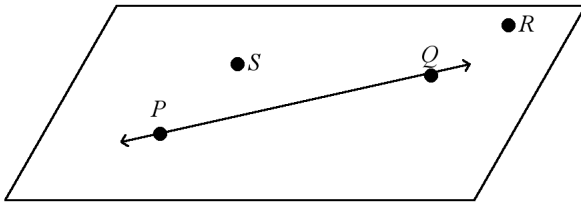
Given each set of vertices, determine whether parallelogram $ABCD$ is a rhombus, a rectangle, or a square. List all that apply.

- ____ 32. $A(-2, 6)$, $B(-2, -1)$, $C(-9, -1)$, $D(-9, 6)$
- | | |
|-------------------------------|--------------|
| a. rhombus | c. square |
| b. square; rectangle; rhombus | d. rectangle |
- ____ 33. For trapezoid $JKLM$, A and B are midpoints of the legs. Find ML .



- | | |
|---------|-------|
| a. 65 | c. 28 |
| b. 32.5 | d. 3 |

_____ 34. Name the line and plane shown in the diagram.



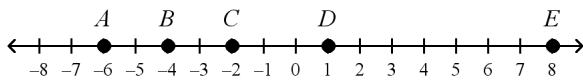
- a. \overleftrightarrow{QP} and plane SR
- b. line P and plane PQS
- c. \overleftrightarrow{PQ} and plane SP
- d. \overleftrightarrow{PQ} and plane PQS

_____ 35. Name the ray in the figure.



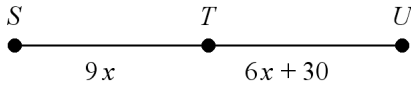
- a. \overrightarrow{BA}
- b. \overleftrightarrow{AB}
- c. \overline{BA}
- d. \overrightarrow{AB}

_____ 36. Which point is the midpoint of \overline{AE} ?



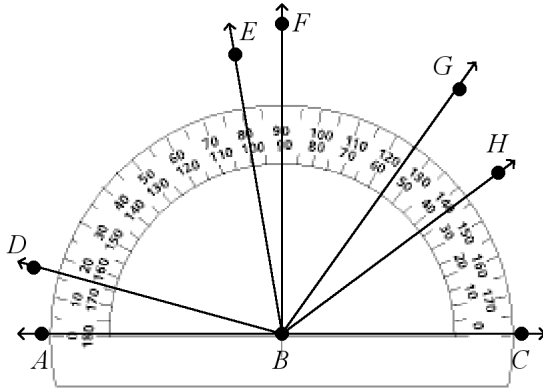
- a. D
- b. B
- c. not $B, C,$ or D
- d. C

_____ 37. If T is the midpoint of \overline{SU} , what are ST , TU , and SU ?



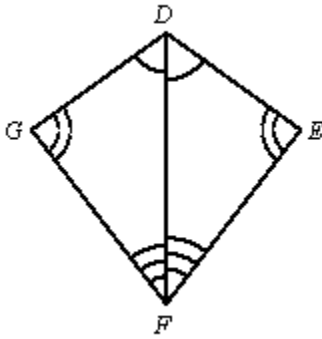
- a. $ST = 10, TU = 90,$ and $SU = 180$
- b. $ST = 110, TU = 110,$ and $SU = 220$
- c. $ST = 18, TU = 18,$ and $SU = 36$
- d. $ST = 90, TU = 90,$ and $SU = 180$

____ 38. What are the measures of $\angle EBG$ and $\angle EBC$? Classify each angle as *acute*, *right*, *obtuse*, or *straight*.



- a. $m\angle EBG = 45^\circ$; $\angle EBG$ is acute.
 $m\angle EBC = 100^\circ$; $\angle EBC$ is obtuse.
- b. $m\angle EBG = 45^\circ$; $\angle EBG$ is acute.
 $m\angle EBC = 90^\circ$; $\angle EBC$ is right.
- c. $m\angle EBG = 55^\circ$; $\angle EBG$ is acute.
 $m\angle EBC = 100^\circ$; $\angle EBC$ is obtuse.
- d. $m\angle EBG = 45^\circ$; $\angle EBG$ is obtuse.
 $m\angle EBC = 100^\circ$; $\angle EBC$ is acute.

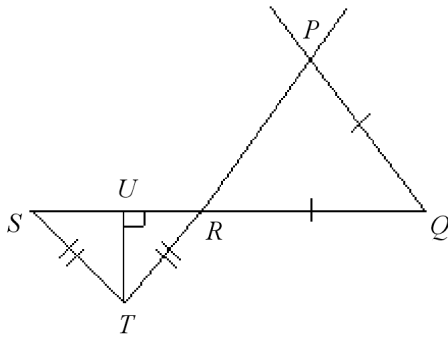
____ 39. Complete the statement.



$\angle DGF \cong ?$

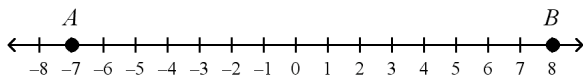
- a. $\angle DFE$
- b. $\angle DEF$
- c. $\angle EDF$
- d. $\angle FED$

_____ 40. What can you conclude from the information in the diagram?



- a. 1. $\overline{PQ} \cong \overline{RQ}$
 2. $\overline{TR} \cong \overline{TS}$
 3. $\angle TRS$ and $\angle PRQ$ are vertical angles
- b. 1. $\overline{PQ} \cong \overline{PR}$
 2. $\overline{TR} \cong \overline{TS}$
 3. $\angle TRS$ and $\angle PRQ$ are adjacent angles
- c. 1. $\overline{PQ} \cong \overline{RQ}$
 2. $\angle RUT$ is a right angle
 3. $\angle RTU$ and $\angle STU$ are vertical angles
- d. 1. $\overline{PQ} \cong \overline{PR}$
 2. $\angle RUT$ is a right angle
 3. $\angle RTU$ and $\angle STU$ are adjacent angles

_____ 41. Which point is the midpoint of \overline{AE} ?



- a. 1.5 b. -1 c. 2.5 d. 0.5

_____ 42. Jose wants to put a fence around his rectangular garden. His garden measures 33 feet by 39 feet. The garden has a path around it that is 3 feet wide. How much fencing material does Jose need to enclose the garden and path?

- a. 120 ft b. 156 ft c. 168 ft d. 84 ft

Chapter 4 Midterm Exam Review

Answer Section

MULTIPLE CHOICE

1. ANS: A

Line m contains points J , D , and B . Line p contains points G and F . Only line \overleftrightarrow{DC} contains point A .

	Feedback
A	Correct!
B	Is point A on that line?
C	Is that a line?
D	What points are on that line?

PTS: 1 DIF: Basic REF: Lesson 1-1

OBJ: 1-1.1 Identify and model points, lines, and planes. STA: LA.1112.1.6.1 | MA.912.G.8.1

TOP: Identify and model points, lines, and planes. KEY: Points | Lines | Planes

2. ANS: C

The points not contained in \overleftrightarrow{AD} or \overleftrightarrow{FG} are J , B , and H . \mathbf{K} is the plane.

	Feedback
A	Is that a point or the plane?
B	Is that point on one of the lines listed?
C	Correct!
D	Is that point on one of the lines listed?

PTS: 1 DIF: Basic REF: Lesson 1-1

OBJ: 1-1.1 Identify and model points, lines, and planes. STA: LA.1112.1.6.1 | MA.912.G.8.1

TOP: Identify and model points, lines, and planes. KEY: Points | Lines | Planes

3. ANS: C

Solve for b first using the two values of HI . $GI = GH + HI$. Solve for GH .

	Feedback
A	Which two segments in the question are the same?
B	Which two segments in the question are the same?
C	Correct!
D	Which segment are you solving for?

PTS: 1 DIF: Average REF: Lesson 1-2 OBJ: 1-2.3 Compute with measures.

STA: MA.912.G.1.2 | MA.912.G.8.6 TOP: Compute with measures.

KEY: Measurement | Compute Measures

4. ANS: C

The distance between two points a and b is $|b - a|$ or $|a - b|$.

	Feedback
A	You are looking for the measure, not the half measure.
B	Add those numbers again.
C	Correct!
D	You are looking for the measure, not the midpoint.

PTS: 1

DIF: Average

REF: Lesson 1-3

OBJ: 1-3.1 Find the distance between two points on a number line.

STA: MA.912.G.1.1 | MA.912.G.1.2

TOP: Find the distance between two points on a number line.

KEY: Distance | Number Lines | Distance Between Two Points

5. ANS: C

The Distance Formula is $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$.

	Feedback
A	With distance you subtract the coordinates.
B	Did you use the distance formula correctly?
C	Correct!
D	Be a little more precise.

PTS: 1

DIF: Basic

REF: Lesson 1-3

OBJ: 1-3.2 Find the distance between two points on a coordinate plane.

STA: MA.912.G.1.1 | MA.912.G.1.2

TOP: Find the distance between two points on a coordinate plane.

KEY: Distance | Coordinate Plane | Distance Between Two Points

6. ANS: C

Supplementary angles are two angles whose measures have a sum of 180.

	Feedback
A	What is the definition of supplementary?
B	What is the definition of complementary?
C	Correct!
D	You want to find the angle first, then its supplement.

PTS: 1

DIF: Average

REF: Lesson 1-5

OBJ: 1-5.1 Identify and use special pairs of angles.

STA: MA.912.G.1.2 | MA.912.G.8.2

TOP: Identify and use special pairs of angles.

KEY: Adjacent Angles | Vertical Angles | Linear Pair | Complementary Angles | Supplementary Angles

7. ANS: A

Count the number of sides to determine the name of the polygon.

	Feedback
A	Correct!
B	How many sides does a dodecagon have?
C	Count the number of sides.
D	How many sides does an octagon have?

PTS: 1 DIF: Average REF: Lesson 1-6 OBJ: 1-6.1 Identify polygons.

STA: MA.912.G.2.5 | MA.912.G.2.6 | MA.912.G.2.1 | MA.912.G.2.7

TOP: Identify polygons.

KEY: Polygons | Identify Polygons

8. ANS: B

The circumference C of a circle is the distance around the circle.

$$C = 2\pi r$$

	Feedback
A	Use the correct formula.
B	Correct!
C	You need to multiply by 2, not divide.
D	You have calculated the area.

PTS: 1 DIF: Basic REF: Lesson 1-6

OBJ: 1-6.4 Find circumference of circles.

STA: MA.912.G.2.5 | MA.912.G.2.6 | MA.912.G.2.1 | MA.912.G.2.7

TOP: Find circumference of circles.

KEY: Circumference | Circles

9. ANS: D

Unless there are specific angle measures mentioned, even though the angles in the picture may look congruent you cannot assume that they are congruent.

	Feedback
A	What is the definition of congruent?
B	What is the definition of congruent?
C	What is the definition of congruent?
D	Correct!

PTS: 1 DIF: Basic REF: Lesson 2-1 OBJ: 2-1.2 Find counterexamples.

STA: LA.910.1.6.5 | MA.912.G.8.3 TOP: Find counterexamples.

KEY: Counterexamples

10. ANS: B

Two or more statements can be joined to form a compound statement. A conjunction is a compound statement formed by joining two or more statements with the word *and*. The symbol for logical *and* is \wedge .

	Feedback
A	What is the symbol for logical <i>or</i> ?
B	Correct!
C	What is the symbol for logical <i>not</i> ?
D	What is the symbol for logical <i>not</i> ?

PTS: 1 DIF: Average REF: Lesson 2-2
 OBJ: 2-2.1 Determine truth values of conjunctions and disjunctions.
 STA: MA.912.D.6.1
 TOP: Determine truth values of conjunctions and disjunctions.
 KEY: Truth Values | Conjunctions | Disjunctions

11. ANS: A

The first statement column in a truth table contains half *T*s, half *F*s, grouped together. The second statement column in a truth table contains the same, but they are grouped by half the number that the first column was. The third statement column contains the same but they are grouped by half the number that the second column was. Use the truth values of the first three columns to determine the truth values for the last two columns. The symbol for *not* is \sim . The symbol for logical *and* is \wedge .

	Feedback
A	Correct!
B	Check the values for the last two columns carefully.
C	Do your statement columns show every possible <i>T</i> and <i>F</i> combination?
D	Check the values for the last two columns carefully.

PTS: 1 DIF: Average REF: Lesson 2-2 OBJ: 2-2.2 Construct truth tables.
 STA: MA.912.D.6.1 TOP: Construct truth tables.
 KEY: Truth Tables

12. ANS: C

The converse of a conditional statement ($p \rightarrow q$) exchanges the hypothesis and conclusion of the conditional. It is also known as $q \rightarrow p$.

	Feedback
A	Check the statement again.
B	Check the statement again.
C	Correct!
D	What is the definition of converse?

PTS: 1 DIF: Basic REF: Lesson 2-3
 OBJ: 2-3.2 Write the converse of if-then statements.
 STA: MA.912.D.6.2 | MA.912.D.6.3 | MA.912.D.6.1
 TOP: Write the converse of if-then statements. KEY: Converse | If-Then Statements

13. ANS: B

The inverse is negating both the hypothesis and conclusion of the conditional.

$$\sim p \rightarrow \sim q$$

	Feedback
A	Remember $\sim p \rightarrow \sim q$.
B	Correct!
C	Remember $\sim p \rightarrow \sim q$.
D	Remember $\sim p \rightarrow \sim q$.

PTS: 1 DIF: Average REF: Lesson 2-3

OBJ: 2-3.3 Write the inverse of if-then statements.

STA: MA.912.D.6.2 | MA.912.D.6.3 | MA.912.D.6.1

TOP: Write the inverse of if-then statements.

KEY: Inverse | If-Then Statements

14. ANS: A

The Law of Syllogism states, "If $p \rightarrow q$ and $q \rightarrow r$ are true, then $p \rightarrow r$ is also true."The Law of Detachment states, "If $p \rightarrow q$ is true and p is true, then q is also true."

	Feedback
A	Correct!
B	What are the definitions of the two Laws of Reasoning?
C	What are the definitions of the two Laws of Reasoning?

PTS: 1 DIF: Basic REF: Lesson 2-4

OBJ: 2-4.1 Use the Law of Detachment and the Law of Syllogism.

STA: MA.912.D.6.4

TOP: Use the Law of Detachment and the Law of Syllogism.

KEY: Law of Detachment | Law of Syllogism

15. ANS: D

A line that intersects two or more lines in a plane at different points is called a transversal.

	Feedback
A	What about line p ?
B	You need every combination of the lines.
C	What is the definition of transversal?
D	Correct!

PTS: 1 DIF: Basic REF: Lesson 3-1

OBJ: 3-1.2 Name angles formed by a pair of lines and a transversal.

STA: LA.1112.1.6.1 | MA.912.G.1.3

TOP: Name angles formed by a pair of lines and a transversal.

KEY: Transversals | Two Lines and a Transversal | Angles

16. ANS: A

A line that intersects two or more lines in a plane at different points is called a transversal.

	Feedback
A	Correct!
B	What is the definition of transversal?
C	You need every combination of lines.
D	You need every combination of the lines.

PTS: 1

DIF: Average

REF: Lesson 3-1

OBJ: 3-1.2 Name angles formed by a pair of lines and a transversal.

STA: LA.1112.1.6.1 | MA.912.G.1.3

TOP: Name angles formed by a pair of lines and a transversal.

KEY: Transversals | Two Lines and a Transversal | Angles

17. ANS: A

Corresponding angles are congruent.

Alternate interior angles are congruent.

Consecutive interior angles are supplementary.

Alternate exterior angles are congruent.

	Feedback
A	Correct!
B	What is the sum of supplementary angles?
C	Are those angles congruent or supplementary?
D	What do supplementary angles add up to?

PTS: 1

DIF: Average

REF: Lesson 3-2

OBJ: 3-2.1 Use the properties of parallel lines to determine congruent angles.

STA: MA.912.G.1.3

TOP: Use the properties of parallel lines to determine congruent angles.

KEY: Parallel Lines | Congruent Angles

18. ANS: C

Corresponding angles are congruent.

Alternate interior angles are congruent.

Consecutive interior angles are supplementary.

Alternate exterior angles are congruent.

	Feedback
A	What do supplementary angles add up to?
B	What do the angles of a right triangle add up to?
C	Correct!
D	Is that triangle isosceles?

PTS: 1

DIF: Average

REF: Lesson 3-2

OBJ: 3-2.2 Use algebra to find angle measures.

STA: MA.912.G.1.3

TOP: Use algebra to find angle measures.

KEY: Angles | Angle Measures

19. ANS: D

Extend v to intersect with p . This creates a linear pair at point S with angles measuring 119° (given) and 61° . The angles formed by the intersection of v and p (also linear pairs) measure 125° (corresponding angles) and 55° with the latter being one of the interior angles of the triangle formed by t , p , and v . Since the sum of the angles of a triangle is 180° , the angle that is vertical to $\angle 1$ is 64° , thus making $\angle 1$ 64° as well.

	Feedback
A	Extend v as a transversal of q and p .
B	Extend v as a transversal of q and p .
C	Extend v as a transversal of q and p .
D	Correct!

PTS: 1 DIF: Average REF: Lesson 3-2

OBJ: 3-2.2 Use algebra to find angle measures.

STA: MA.912.G.1.3

TOP: Use algebra to find angle measures.

KEY: Angles | Angle Measures

20. ANS: C

The point-slope form is $y - y_1 = m(x - x_1)$. Point (x_1, y_1) is a point through which the line passes.

	Feedback
A	Remember the point-slope form is $y - y_1 = m(x - x_1)$.
B	Is that point-slope form?
C	Correct!
D	Be careful with sign rules.

PTS: 1 DIF: Average REF: Lesson 3-4

OBJ: 3-4.2 Solve problems by writing equations.

STA: MA.912.G.8.2

TOP: Solve problems by writing equations.

KEY: Solve Problems | Write Equations

21. ANS: C

Postulates and theorems:

If corresponding angles are congruent, then lines are parallel.

If given a line and a point not on the line, then there exists exactly one line through the point that is parallel to the given line.

If alternate exterior angles are congruent, then lines are parallel.

If consecutive interior angles are supplementary, then lines are parallel.

If alternate interior angles are congruent, then lines are parallel.

If two lines are perpendicular to the same line, then lines are parallel.

	Feedback
A	What kind of angles are those?
B	What kind of angles are those?
C	Correct!
D	Which lines are parallel?

PTS: 1 DIF: Basic REF: Lesson 3-5

OBJ: 3-5.1 Recognize angle conditions that occur with parallel lines.

STA: MA.912.G.1.2

TOP: Recognize angle conditions that occur with parallel lines.

KEY: Angles | Parallel Lines

22. ANS: C

The Angle Sum Theorem states that the sum of the measures of the angles of a triangle is 180.

	Feedback
A	What do you know about vertical angles?
B	What do you know about vertical angles?
C	Correct!
D	Use the Angle Sum Theorem.

PTS: 1 DIF: Basic REF: Lesson 4-2

OBJ: 4-2.1 Apply the Angle Sum Theorem.

STA: MA.912.G.2.2 | MA.912.G.8.5 | MA.912.D.6.4 | MA.912.G.8.2

TOP: Apply the Angle Sum Theorem. KEY: Angle Sum Theorem

23. ANS: C

The Exterior Angle Theorem states that the measure of an exterior angle of a triangle is equal to the sum of the measures of the two remote interior angles.

	Feedback
A	What is the sum of the measures of the angles in a triangle?
B	Did you use the Exterior Angle Theorem?
C	Correct!
D	Use the Exterior Angle Theorem.

PTS: 1

DIF: Average

REF: Lesson 4-2

OBJ: 4-2.2 Apply the Exterior Angle Theorem.

STA: MA.912.G.2.2 | MA.912.G.8.5 | MA.912.D.6.4 | MA.912.G.8.2

TOP: Apply the Exterior Angle Theorem.

KEY: Exterior Angle Theorem

24. ANS: A

The Exterior Angle Theorem states that the measure of an exterior angle of a triangle is equal to the sum of the measures of the two remote interior angles.

	Feedback
A	Correct!
B	What is the sum of the measures of the angles in a triangle?
C	Did you use the Exterior Angle Theorem?
D	Use the Exterior Angle Theorem.

PTS: 1

DIF: Average

REF: Lesson 4-2

OBJ: 4-2.2 Apply the Exterior Angle Theorem.

STA: MA.912.G.2.2 | MA.912.G.8.5 | MA.912.D.6.4 | MA.912.G.8.2

TOP: Apply the Exterior Angle Theorem.

KEY: Exterior Angle Theorem

25. ANS: C

The vertices naming the triangles correspond to the congruent vertices of the two triangles in the same order.

	Feedback
A	The letters naming the triangles correspond to the congruent vertices of the two triangles.
B	Be careful with the order of the vertices.
C	Correct!
D	Are the vertices in the correct order?

PTS: 1

DIF: Average

REF: Lesson 4-3

OBJ: 4-3.2 Identify congruent transformations.

STA: MA.912.G.4.4 | MA.912.G.4.6

TOP: Identify congruent transformations.

KEY: Transformations | Congruence Transformations

26. ANS: B
 $4y - 4 = 60$
 $3x - 8 = 2x - 1$

	Feedback
A	Did you set the two sides equal to each other?
B	Correct!
C	How many degrees is each angle of an equilateral triangle?
D	How many degrees is $\angle H$?

PTS: 1 DIF: Basic REF: Lesson 4-6
 OBJ: 4-6.2 Use the properties of equilateral triangles. STA: LA.910.1.6.5 | MA.912.G.4.1
 TOP: Use the properties of equilateral triangles. KEY: Equilateral Triangles

27. ANS: A
 $(2y + 6) + (2y + 6) + (2y + 6) = 180$
 $x + 4 = 2x - 3$

	Feedback
A	Correct!
B	What do you know about the sides of an equilateral triangle?
C	How many degrees is each angle of an equilateral triangle?
D	Did you add or subtract when solving for y ?

PTS: 1 DIF: Average REF: Lesson 4-6
 OBJ: 4-6.2 Use the properties of equilateral triangles. STA: LA.910.1.6.5 | MA.912.G.4.1
 TOP: Use the properties of equilateral triangles. KEY: Equilateral Triangles

28. ANS: C
 Using the properties of parallelograms, study the quadrilateral. If it satisfies the properties, it is a parallelogram.

	Feedback
A	Consecutive angles are not a property of parallelograms.
B	Are congruent consecutive angles a property of parallelograms?
C	Correct!
D	Opposite angles must be congruent for a quadrilateral to be a parallelogram.

PTS: 1 DIF: Basic REF: Lesson 6-3
 OBJ: 6-3.1 Recognize the conditions that ensure a quadrilateral is a parallelogram.
 STA: MA.912.G.3.1 | MA.912.G.3.4 | MA.912.G.3.3
 TOP: Recognize the conditions that ensure a quadrilateral is a parallelogram.
 KEY: Quadrilaterals | Parallelograms | Determining a Parallelogram

29. ANS: A

The diagonals of a rectangle are congruent. Set the segments equal to each other and solve for the variable. Use the variable's value to solve for the diagonal length.

	Feedback
A	Correct!
B	This is the value of the variable not the length of the diagonal.
C	Multiply, not divide, by two to find the length of the diagonal.
D	This is not the length of the entire diagonal.

PTS: 1 DIF: Average REF: Lesson 6-4

OBJ: 6-4.1 Recognize and apply properties of rectangles.

STA: MA.912.G.3.1 | MA.912.G.3.4 | MA.912.G.3.3 | MA.912.G.3.2

TOP: Recognize and apply properties of rectangles.

KEY: Rectangles | Properties of Rectangles

30. ANS: C

Each angle of a rectangle is a right angle. Add the given angles together and set the sum equal to 90. Solve for the variable. Use the value of the variable to find the missing angle.

	Feedback
A	Which angle are you finding?
B	This is the value of the variable.
C	Correct!
D	Does the diagonal bisect the angles of a rectangle?

PTS: 1 DIF: Average REF: Lesson 6-4

OBJ: 6-4.1 Recognize and apply properties of rectangles.

STA: MA.912.G.3.1 | MA.912.G.3.4 | MA.912.G.3.3 | MA.912.G.3.2

TOP: Recognize and apply properties of rectangles.

KEY: Rectangles | Properties of Rectangles

31. ANS: B

All sides of a rhombus are congruent.

	Feedback
A	All sides of a rhombus are congruent.
B	Correct!
C	All sides of a rhombus are congruent.
D	Do not use properties of special triangles.

PTS: 1 DIF: Basic REF: Lesson 6-5

OBJ: 6-5.1 Recognize and apply properties of rhombi.

STA: MA.912.G.3.1 | MA.912.G.3.4 | MA.912.G.3.3 | MA.912.G.3.2

TOP: Recognize and apply the properties of rhombi.

KEY: Rhombi | Properties of Rhombi

32. ANS: B

Plot the vertices on a coordinate plane. Determine if the diagonals are perpendicular. If so, the quadrilateral is either a rhombus or square. Use the distance formula to compare the lengths of the diagonals. If the diagonals are congruent and perpendicular, the quadrilateral is a square.

	Feedback
A	Are the angles congruent?
B	Correct!
C	Remember to list all that apply.
D	Are the sides congruent?

PTS: 1

DIF: Average

REF: Lesson 6-5

OBJ: 6-5.2 Recognize and apply the properties of squares.

STA: MA.912.G.3.1 | MA.912.G.3.4 | MA.912.G.3.3 | MA.912.G.3.2

TOP: Recognize and apply the properties of squares.

KEY: Squares | Properties of Squares

33. ANS: C

To find the other base, substitute the given values into the formula, $\text{median} = \frac{\text{base 1} + \text{base 2}}{2}$.

	Feedback
A	Do not add the median and base.
B	AB is the median not a base.
C	Correct!
D	Do not subtract the median from the base.

PTS: 1

DIF: Average

REF: Lesson 6-6

OBJ: 6-6.1 Recognize and apply the properties of trapezoids.

STA: MA.912.G.3.1 | MA.912.G.3.4 | MA.912.G.3.3 | MA.912.G.3.2

TOP: Recognize and apply the properties of trapezoids.

KEY: Trapezoids | Properties of Trapezoids

34. ANS: D

PTS: 1

DIF: L3

REF: 1-2 Points, Lines, and Planes

OBJ: 1-2.1 Understand basic terms and postulates of geometry

STA: MA.912.G.8.1

TOP: 1-2 Problem 1 Naming Points, Lines, and Planes

KEY: line | plane DOK: DOK 1

35. ANS: A

PTS: 1

DIF: L2

REF: 1-2 Points, Lines, and Planes

OBJ: 1-2.1 Understand basic terms and postulates of geometry

STA: MA.912.G.8.1

TOP: 1-2 Problem 2 Naming Segments and Rays

KEY: ray DOK: DOK 1

36. ANS: A

PTS: 1

DIF: L2

REF: 1-3 Measuring Segments

OBJ: 1-3.1 Find and compare lengths of segments

STA: MA.912.G.1.1

TOP: 1-3 Problem 4 Using the Midpoint

KEY: segment length | segment | midpoint

DOK: DOK 2

37. ANS: D

PTS: 1

DIF: L4

REF: 1-3 Measuring Segments

OBJ: 1-3.1 Find and compare lengths of segments

STA: MA.912.G.1.1

TOP: 1-3 Problem 4 Using the Midpoint

KEY: segment | segment length | midpoint | multi-part question

DOK: DOK 2

38. ANS: A PTS: 1 DIF: L3 REF: 1-4 Measuring Angles
 OBJ: 1-4.1 Find and compare the measures of angles
 TOP: 1-4 Problem 2 Measuring and Classifying Angles
 KEY: acute angle | right angle | obtuse angle DOK: DOK 2
39. ANS: B PTS: 1 DIF: L3 REF: 1-4 Measuring Angles
 OBJ: 1-4.1 Find and compare the measures of angles
 TOP: 1-4 Problem 3 Using Congruent Angles KEY: congruent angles
 DOK: DOK 2
40. ANS: A PTS: 1 DIF: L3 REF: 1-5 Exploring Angle Pairs
 OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
 STA: MA.912.G.4.2 TOP: 1-5 Problem 2 Making Conclusions From a Diagram
 KEY: vertical angles | supplementary angles | adjacent angles | right angle | congruent segments
 DOK: DOK 1
41. ANS: D PTS: 1 DIF: L3 REF: 1-7 Midpoint and Distance in the Coordinate Plane
 OBJ: 1-7.1 Find the midpoint of a segment STA: MA.912.G.1.1
 TOP: 1-7 Problem 1 Finding the Midpoint
 KEY: segment length | segment | midpoint DOK: DOK 2
42. ANS: C PTS: 1 DIF: L4 REF: 1-8 Perimeter, Circumference, and Area
 OBJ: 1-8.1 Find the perimeter or circumference of basic shapes
 STA: MA.912.G.2.5| MA.912.G.6.5 TOP: 1-8 Problem 1 Finding the Perimeter of a Rectangle
 KEY: perimeter | rectangle | word problem | problem solving DOK: DOK 2