# AMI—Geometry: Day 1

**1** *Multiple Choice* Choose the next figure in the pattern.
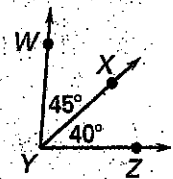
Ⓐ

Ⓑ

Ⓒ

Ⓓ

Ⓔ

**2** What is the next number in the sequence?

$2, -1, -4, -7 \ldots$

**3** *Multiple Choice* What does the symbol $\overrightarrow{BC}$ represent?

Ⓐ segment $BC$    Ⓑ line $BC$

Ⓒ point $B$    Ⓓ ray $BC$

Ⓔ ray $CB$

**4** $MQ = 30$, $MN = 5$, $MN = NO$, and $OP = PQ$.

M   N   O    P    Q

Find the length of $\overline{OQ}$.

**5**

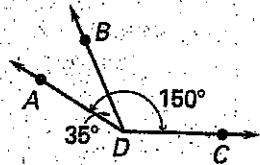Name all points that are collinear to points $N$ and $Z$.

**6** Find $m\angle WYZ$.

**7** *Multiple Choice* Which angle appears to be a right angle?

Ⓐ      Ⓑ

Ⓒ      Ⓓ

Ⓔ
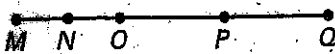
**8** *Multiple Choice* An angle measuring 35° would be a(n) ___?___ .

Ⓐ acute angle    Ⓑ obtuse angle

Ⓒ right angle    Ⓓ straight angle

Ⓔ adjacent angle

**9** Find $m\angle BDC$.

$B$
$A$
$150°$
$35°$
$D$
$C$

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**10** Find the midpoint of a segment with endpoints $A(3, -2)$ and $B(8, 1)$.

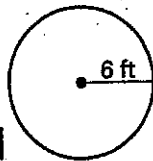$$\text{Midpoint} = \left( \frac{X_1 + X_2}{2}, \frac{Y_1 + Y_2}{2} \right)$$

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**11** Find the value of $x$.

$(3x + 2)°$     $(4x - 5)°$

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**12** *Multiple Choice* Find the circumference of the circle. (Use $\pi \approx 3.14$.)

$6$ ft

$$\text{Circumference} = 2\pi d$$

Where d = diameter

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**13** *Multiple Choice* What is the inverse of "If water is ice, then the water's temperature is 32°F?"

Ⓐ  If water's temperature is 32°F, then it is ice.

Ⓑ  If water is not ice, then its temperature is not 32°F.

Ⓒ  If water's temperature is not 32°F, then water is not ice.

Ⓓ  Water is ice if and only if its temperature is 32°F.

Ⓔ  None of the above

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**14** *Multiple Choice* What is the biconditional form of the statement "If a whitetail deer has antlers, then it is a male deer?"

Ⓐ  A whitetail deer has no antlers if and only if it is not a male deer.

Ⓑ  A whitetail deer has antlers if and only if it is a male deer.

Ⓒ  If a whitetail deer has no antlers, then it is not a male deer.

Ⓓ  If a whitetail deer is male, then it has antlers.

Ⓔ  None of the above

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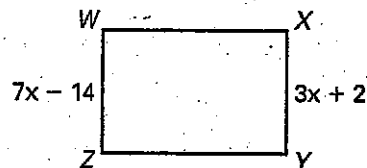**15** *Multiple Choice* Solve $5x = -10$, then choose the property that applies to the required step.

Ⓐ  Substitution property

Ⓑ  Addition property

Ⓒ  Division property

Ⓓ  Distributive property

Ⓔ  Reflexive property

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**16** In $WXYZ$, $\overline{WZ} \cong \overline{XY}$. What is the value of $x$?

$W$       $X$
$7x - 14$       $3x + 2$
$Z$       $Y$

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**17** Two angles $\angle 1$ and $\angle 2$ are complementary. If $m\angle 1$ is 27°, what is $m\angle 2$?

# AMI—Geometry: Day 2

**1.** _____ term can be used to describe a triangle that has no equal sides?
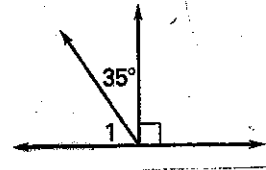
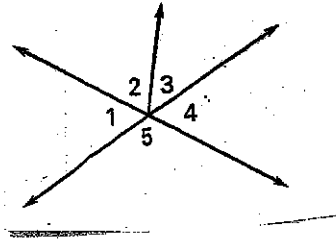**2.** Given $\triangle PQR \cong \triangle XYZ$, which side is congruent to $\overline{PR}$?

**3.** Which of the following terms can be used to describe a triangle whose angle measures are $30°$, $120°$, and $30°$?

  (A) acute
  (B) obtuse
  (C) isosceles
  (D) right
  (E) equiangular

**4.** In the diagram, $\overleftrightarrow{MN}$ is the perpendicular bisector of $\overline{AD}$. What are the values of $x$ and $y$?

$\frac{1}{2}x + 9$   $6x - 2$

$2y - 5$   $\frac{1}{4}y + 9$

**5.** What special type of quadrilateral has the vertices $F(-6, -2)$, $G(1, -2)$, $H(-6, -5)$, and $I(1, -5)$?

  (A) rectangle
  (B) square
  (C) parallelogram
  (D) rhombus
  (E) kite

**6.** What is the $m\angle 1$?

35°

**7.**

Which angles are vertical angles?

  (A) $\angle 1$ and $\angle 2$
  (B) $\angle 1$ and $\angle 5$
  (C) $\angle 3$ and $\angle 5$
  (D) $\angle 1$ and $\angle 4$
  (E) $\angle 4$ and $\angle 5$
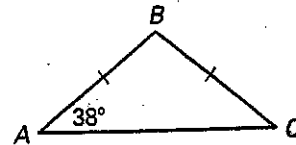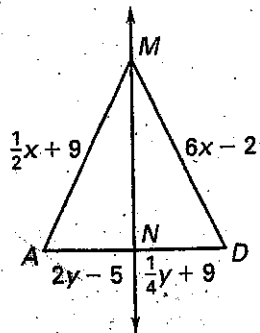
**8.** What is the measure of $\angle B$?

38°

**9.** Choose the statement that is true about a kite.

  (A) Only one pair of opposite angles are congruent.
  (B) Opposite sides are congruent.
  (C) Diagonals bisect each other.
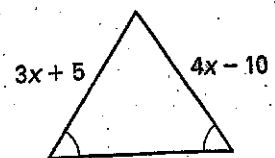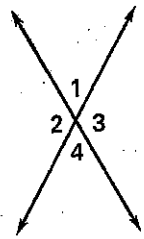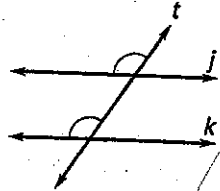  (D) Diagonals are congruent.
  (E) None of these are true.

**10.** What is the value of $x$?

$3x + 5$   $4x - 10$

11) If $m\angle 3 = 126°$, then $m\angle 2 = $ ? .

16) Which figure below is a polygon?
I. II. III.

(A) I only
(B) II only
(C) III only
(D) I and III
(E) none of these

12) Which theorem or postulate shows $j \parallel k$?

(A) Alt. Int. $\angle$s Converse
(B) Cons. Int. $\angle$s Converse
(C) Alt. Ext. $\angle$s Converse
(D) Corresp. $\angle$s Converse
(E) None of these

17) Opposite angles of a parallelogram must be ? .

(A) complementary
(B) supplementary
(C) congruent
(D) A and C
(E) B and C

18) In trapezoid $KLMN$, $\overline{KL}$ and $\overline{NM}$ are ? .

(A) legs
(B) bases
(C) consecutive angles
(D) diagonals
(E) none of these

13) Find the slope of the line that passes through $(5, 2)$ and $(8, -1)$.

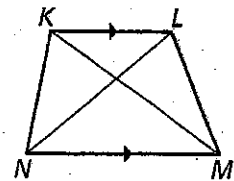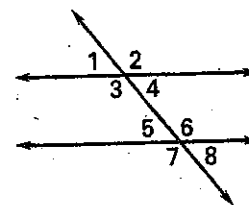$$\text{\underline{Slope}} = m = \frac{y_2 - y_1}{x_2 - x_1}$$

19) Solve $x + 12 = 24$, then choose the property that applies to the required step.

(A) Substitution property of equality.
(B) Division property of equality.
(C) Subtraction property of equality.
(D) Distributive property of equality.
(E) Reflexive property of equality.

14) An octagon has how many sides?

20) In the diagram, $\angle 4$ and $\angle 5$ are what type of angles?

(A) corresponding angles
(B) alternate interior angles
(C) alternate exterior angles
(D) consecutive interior angles
(E) consecutive exterior angles
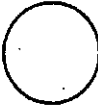
15) A polygon with 7 sides is called a ? .

(A) nonagon
(B) dodecagon
(C) heptagon
(D) hexagon
(E) decagon

# AMI—Geometry: Day 3

A baseball "diamond" is a square with side lengths of 90 feet.

a. Copy the diagram and label each side of the square with the correct measurements along each base path.

b. What is the measurement of each angle formed at the 3 bases and home plate?

c. Using the Pythagorean Theorem, how far is a throw from third base to first base? Round to the hundredths.
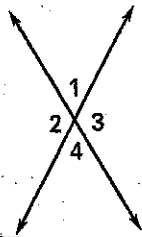
2nd

3rd      1st

Home
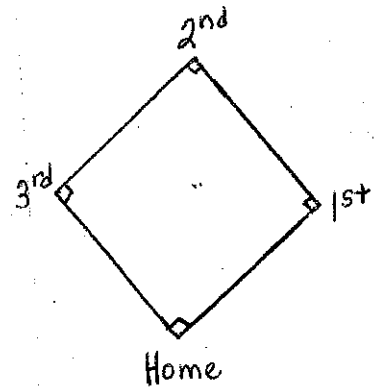
Pythagorean Theorem

$$a^2 + b^2 = c^2$$

Show all work or explain...even if you use mental math or a calculator.

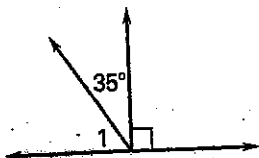⑱ **Multiple Choice** If $m\angle 3 = 126°$, then $m\angle 2 = $ ___?___ .

```
        1
      2 X 3
        4
```

⑲ **Multiple Choice** What is the $m\angle 1$?

```
      35°
       1 ⌐
```

⑳ **let p be "it is raining," let q be "it is thundering," and let r be "we cannot swim."**

What is $q \rightarrow p$?

Ⓐ If it is raining, then it is thundering.

Ⓑ If it is raining, then we cannot swim.

Ⓒ If it is thundering, then it is raining.

Ⓓ If it is thundering, then we cannot swim.
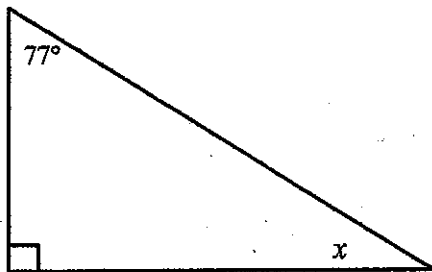
Ⓔ If it is not raining, then it is not thundering.

① Draw three noncollinear points, $A$, $B$, and $C$.

② Then draw point $D$ on line $AB$ between points $A$ and $B$.

③ Draw segment $CD$. Draw ray $CA$ and ray $CB$.

④ Are points $A$, $B$, and $D$ collinear? Are points $B$, $C$, and $D$ collinear?

⑤ Are $\overrightarrow{CA}$ and $\overrightarrow{CB}$ opposite rays? Are $\overrightarrow{DA}$ and $\overrightarrow{DB}$ opposite rays?
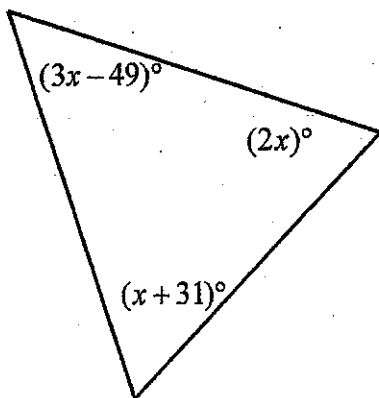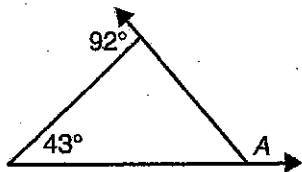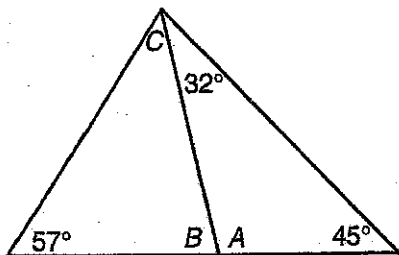
6. Find the value of $x$.



7. Find the measures of <u>all three angles</u> of the triangle.
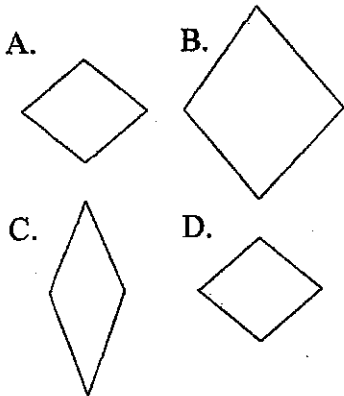


8. Find the measure of $\angle A$ below.



9. Find the measures of angles $A$, $B$, and $C$.

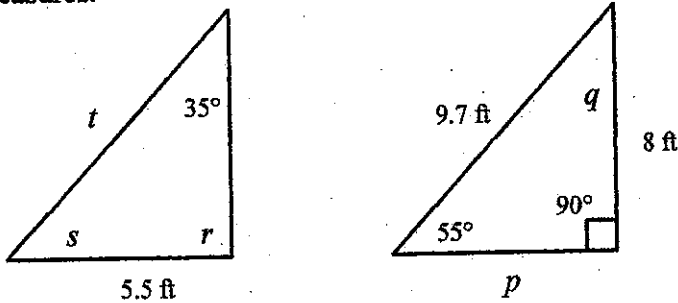10. Which two figures shown below appear to be congruent?

A.

B.

C.

D.

[A] B and D    [B] B and C    [C] A and D    [D] A and B

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11. If $\triangle RPQ \cong \triangle JKL$, then $\overline{LJ} \cong$ _____ .

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12. The two triangle-shaped gardens are congruent. Find the missing side lengths and angle measures.



$t$    $35°$

$s$    $r$

5.5 ft

9.7 ft    $q$

8 ft

$55°$    $90°$

$p$

$p =$ _____   $q =$ ____   $r =$ _____   $s =$ _____   $t =$ _____

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13. If $\triangle ABC \cong \triangle DEF$, $AB = 24$ feet, $m\angle B = 43°$, and $m\angle F = 31°$, which of the following statements is false?

[A] $\angle D \cong \angle A$    [B] $m\angle A = 106°$    [C] $FD = 24$ ft    [D] $ED = AB$

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14. If $\triangle ABC \cong \triangle PQR$ and $\triangle PQR \cong \triangle LMK$, then $\triangle ABC \cong \triangle LMK$. This illustrates which property of congruence?

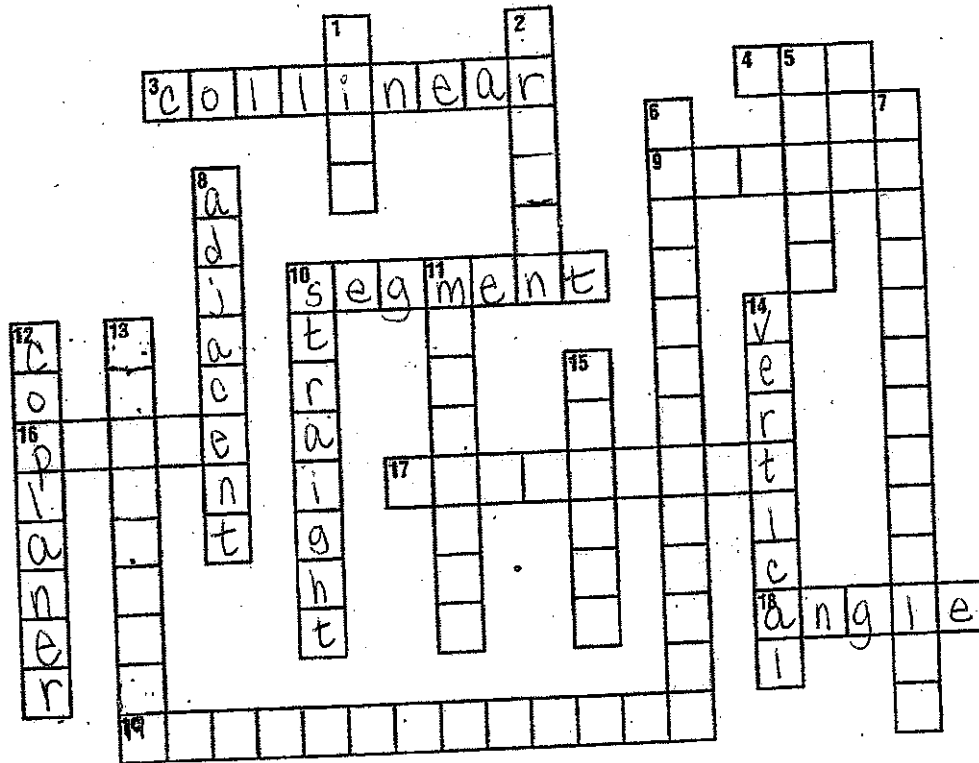[A] Transitive    [B] Symmetric    [C] Commutative    [D] Reflexive

# AMI—Geometry: Day 5

Complete the crossword puzzle.



**ACROSS**

3. Points on the same line are _____.

4. A point on a line and all points of the line to one side of it.

9. An angle whose measure is greater than 90.

10. Two endpoints and all points between them.

16. A flat figure with no thickness that extends indefinitely in all directions.

17. Segments of equal length are _____ segments.

18. Two noncollinear rays with a common endpoint.

19. If m ∠A + m ∠B = 180, then ∠A and ∠B are _____ angles.

**DOWN**

1. The set of all points collinear to two points is a _____.

2. The point where the x- and y-axis meet.

5. An angle whose measure is less than 90.

6. If m ∠A + m ∠B = 90, then ∠A and ∠B are _____ angles.

7. Lines that meet at a 90° angle are _____.

8. Two angles with a common side but no common interior points are _____.

10. An "angle" formed by opposite rays is a _____ angle.

11. The middle point of a line segment.

12. Points that lie in the same plane are _____.

13. The four parts of a coordinate plane.

14. Two nonadjacent angles formed by two intersecting lines are _____ angles.

15. In angle ABC, point B is the _____.