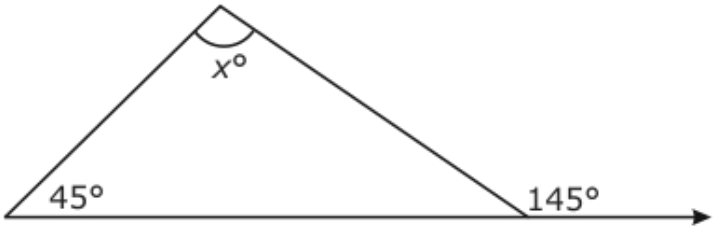
TEST NAME: **G.5 NEW**
TEST ID: **1023141**
GRADE: **08 - Eighth Grade**
SUBJECT: **Mathematics**
TEST CATEGORY: **School Assessment**

Student: _____

Class: _____

Date: _____

1. What is the value of x in the figure below?

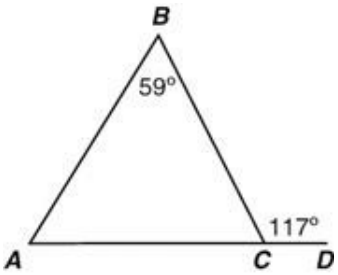


A. 80

B. 90

C. 100

2. **What theorem can be used alone to find the measure of** $\angle A$ **in** $\triangle ABC$**?**



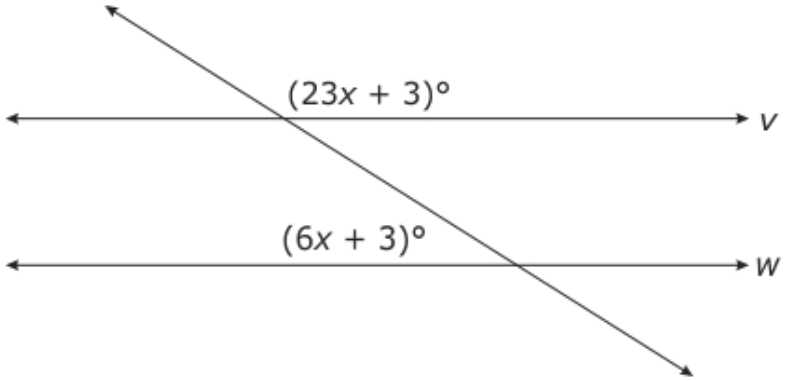
A. the Pythagorean Theorem

B. the Triangle Sum Theorem

C. the Exterior Angle Theorem

D. the Supplementary Angle Theorem

3. Lines v and w are parallel.



What is the value of x?

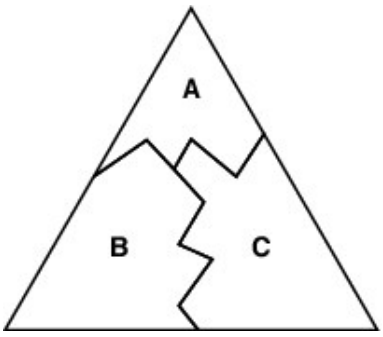
A. 6

B. 8

C. 30

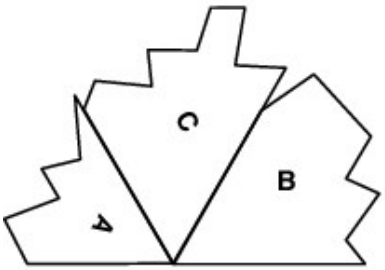
D. 39

4. Joey and Emily's teacher gave them each a triangle divided into three parts—A, B, and C—which looked like the triangle shown below. They were told to cut the pieces apart and rearrange them into a figure that will prove that the sum of the interior angles of a triangle is always equal to 180°.

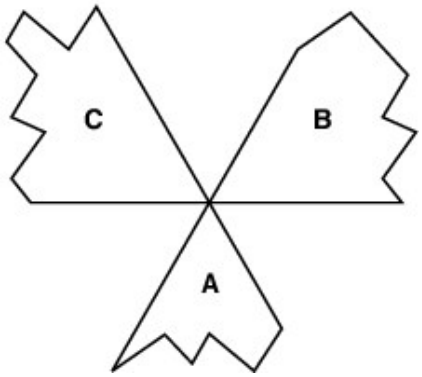


Joey's and Emily's figures are shown below.

Joey's Figure



Emily's Figure



Who has created the correct figure and why?

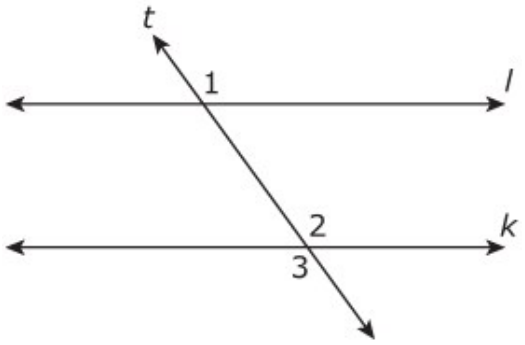
A. Joey, because the interior angles of the original triangle form a straight line

B. Emily, because all of the vertices of the original triangle are touching

C. Joey, because the cut edges all face the same way

D. Emily, because the cut edges form a circular figure

5. In the figure below, lines l and k are parallel.



Which statement(s) can be used to prove that Angle 1 is congruent to Angle 3?

A. Angle 1 and Angle 3 are congruent because they both measure more than 90°.

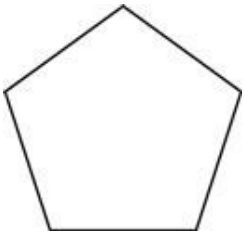
B. Angle 1 and Angle 3 are congruent because they each have a sum of 180° when added to the measure of Angle 2.

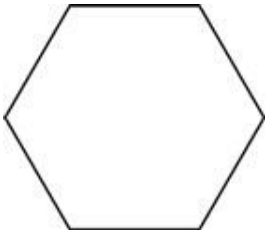
C. Angle 1 and Angle 2 are congruent because corresponding angles of parallel lines cut by a transversal are congruent.
Angle 1 and Angle 3 are congruent because corresponding angles of parallel lines cut by a transversal are congruent.

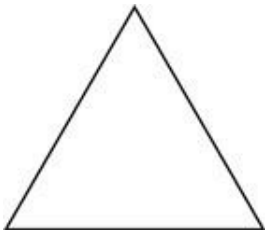
D. Angle 2 and Angle 3 are congruent because vertical angles are congruent.
Angle 1 and Angle 2 are congruent because corresponding angles of parallel lines cut by a transversal are congruent.
Angle 1 and Angle 3 are congruent because they are both congruent to Angle 2.

6. **Which figure's interior angles have a sum of 180°?**

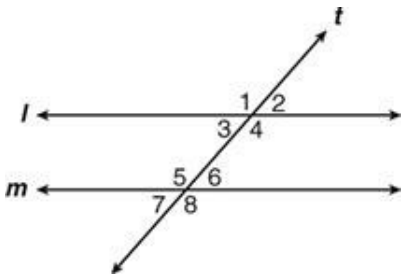
A. 

B. 

C. 

D. 

7. **If Line *l* is parallel to Line *m*, which pair of angles is not supplementary?**



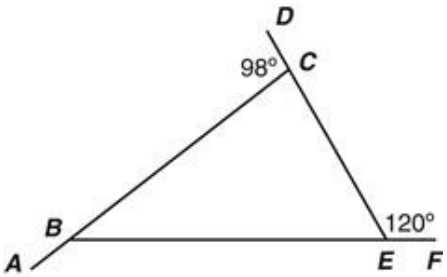
A. $\angle 4$ and $\angle 8$

B. $\angle 3$ and $\angle 1$

C. $\angle 2$ and $\angle 5$

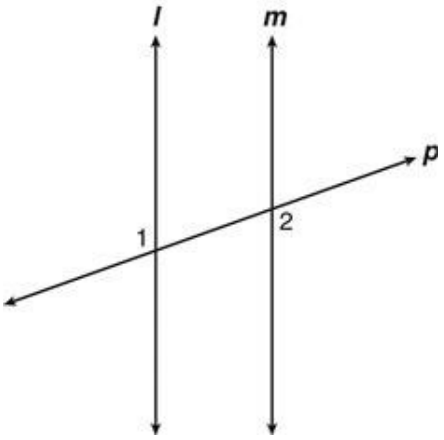
D. $\angle 1$ and $\angle 7$

8. **Which pair of theorems could be used to determine the measurement of $\angle CBE$ in $\triangle BCE$ below?**



A. the Pythagorean Theorem and the Exterior Angle Theorem
B. the Triangle Sum Theorem and the Exterior Angle Theorem
C. the Supplementary Angle Theorem and the Pythagorean Theorem
D. the Exterior Angle Theorem and the Supplementary Angle Theorem

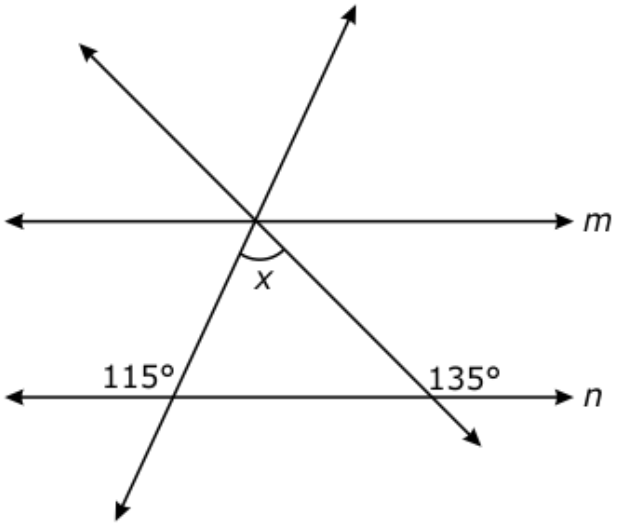
9. **In the figure below, lines *l* and *m* are parallel lines cut by transversal line *p*.**



Jackie said that if $m\angle 1 = 110°$, then $m\angle 2 = 110°$ as well. Which of the following justifies Jackies statement?

A. Alternate exterior angles are congruent.
B. Alternate interior angles are congruent.
C. Corresponding angles are congruent.
D. Vertical angles are congruent.

10. In the figure below, what is the measure of $\angle x$?



A. 45°

B. 65°

C. 70°

11. **If $\angle 1$ and $\angle 2$ are corresponding angles formed by two parallel lines and cut by a transversal, which statement is true?**

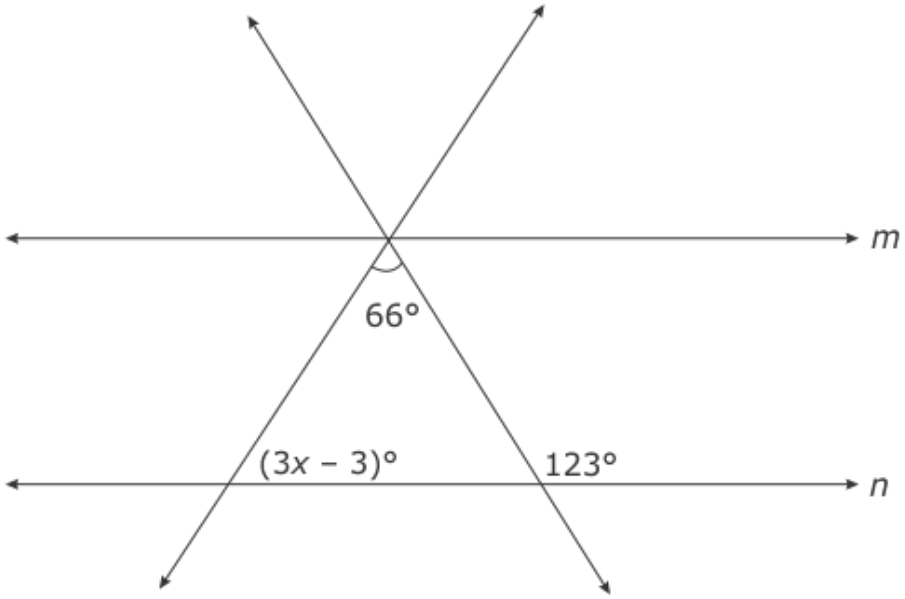
A. $\angle 1$ and $\angle 2$ are complementary

B. $\angle 1$ and $\angle 2$ are supplementary

C. $\angle 1$ and $\angle 2$ are a linear pair

D. $\angle 1$ and $\angle 2$ are congruent

12. In the figure below, lines *m* and *n* are parallel.



What is the value of *x*?

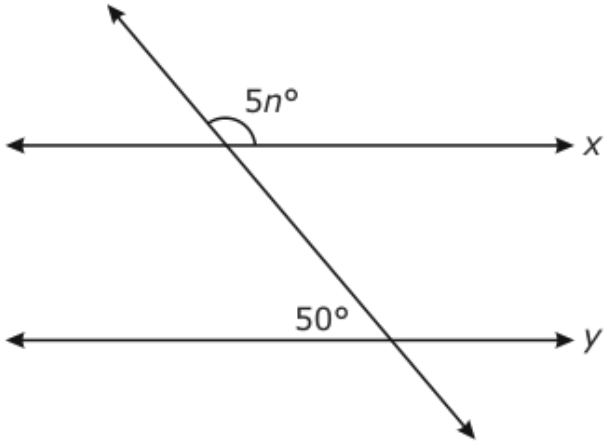
A. 20

B. 23

C. 40

D. 42

13. In the figure below, lines *x* and *y* are parallel.



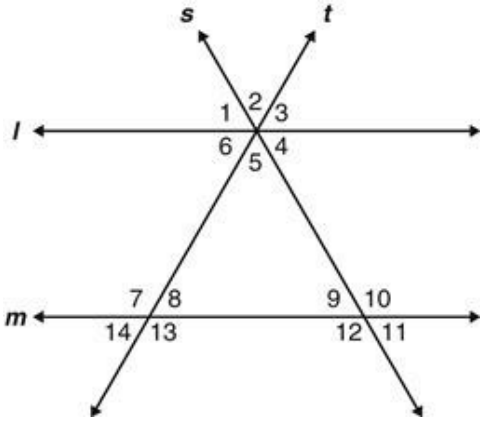
What is the value of *n*?

A. 10

B. 26

C. 36

14. **Given: $l \parallel m$ and lines *s* and *t* are transversal through both *l* and *m*.**



Which statement is true about the angles formed by these lines?

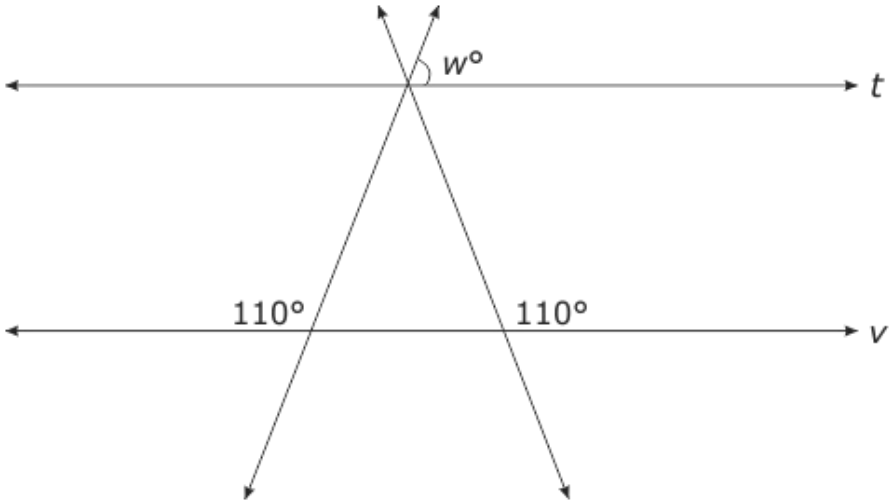
A. Angles 2 and 6 are vertical angles.

B. Angles 2 and 10 are corresponding angles.

C. Angles 4 and 9 are alternate interior angles.

D. Angles 10 and 11 are complementary angles.

15. In the figure below, lines t and v are parallel.



What is the measure of $\angle w$?

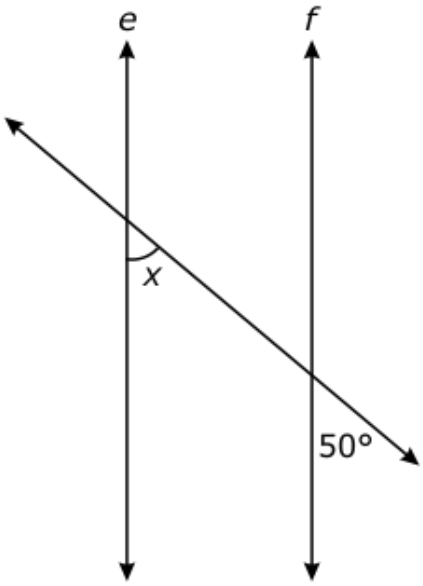
A. 40°

B. 50°

C. 60°

D. 70°

16. In the figure below, lines *e* and *f* are parallel.



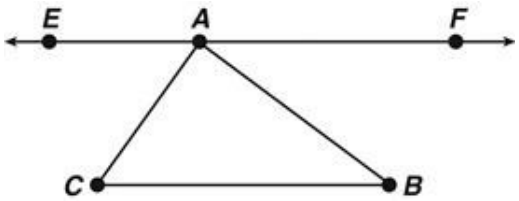
What is the measure of angle *x*?

A. 30°

B. 40°

C. 50°

17. **Lily used properties of parallel lines to conclude that** $\angle CAE \cong \angle BCA$.



Which other result is Lily able to conclude?

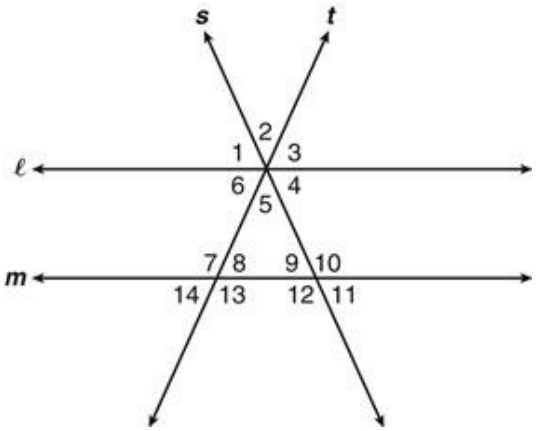
A. $\angle FAB \cong \angle BCA$

B. $\angle FAB \cong \angle CBA$

C. $\angle FAC \cong \angle ABC$

D. $\angle FAC \cong \angle EAB$

18. **In the figure below, Lines ℓ and *m* are parallel. Lines *s* and *t* are transversals of Lines ℓ and *m* and intersect at a point on Line ℓ.**



Which is not a correct conclusion about the angles formed?

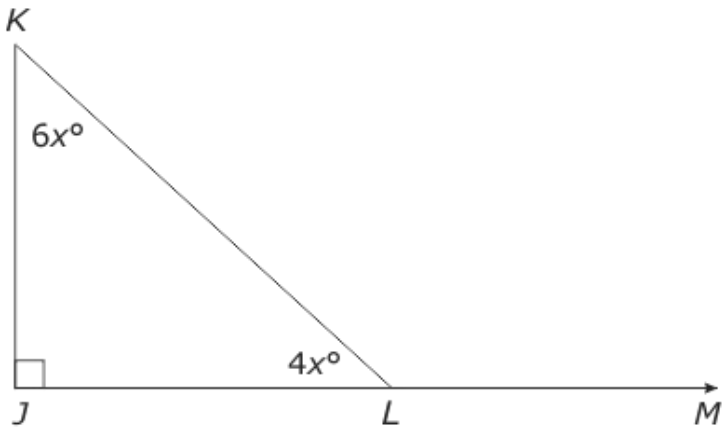
A. $m\angle 6 = m\angle 14$

B. $m\angle 2 + m\angle 3 = m\angle 10$

C. $m\angle 14 + m\angle 7 = 180°$

D. $m\angle 9 = m\angle 3$

19. Right triangle *JKL* is shown below.



What is the measure of $\angle KLM$?

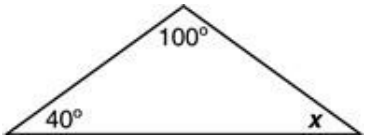
A. 120°

B. 126°

C. 135°

D. 144°

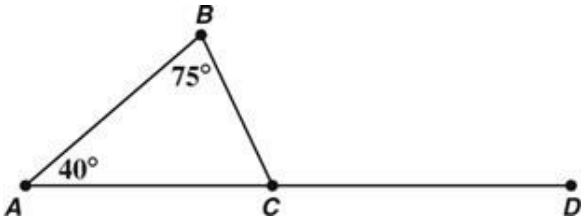
20. **Maria looked at the sketch of a section of roof shown below.**



She said that *x* must be 40º. Which statement justifies Maria's conclusion?

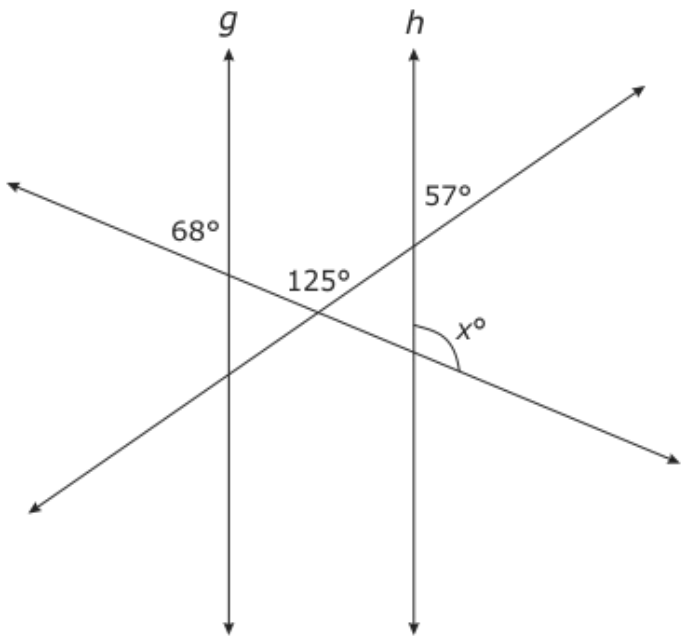
A. A triangle has two congruent angles.
B. An obtuse triangle has one obtuse angle and two acute angles.
C. The sum of the measures of the angles of a triangle is 180º.
D. The measure of an exterior angle equals the sum of the measures of its two remote interior angles.

21. **What is the relationship among $m \angle BCD$, $m \angle A$, and $m \angle B$ in the figure below?**



A. $40° + 75° = m \angle BCD$
B. $40° + 75° = 180° - m \angle BCD$
C. $40° - 75° = m \angle BCD$
D. $40° - 75° + m \angle BCD = 180°$

22. In the figure below, lines *g* and *h* are parallel.



What is the measure of $\angle x$?

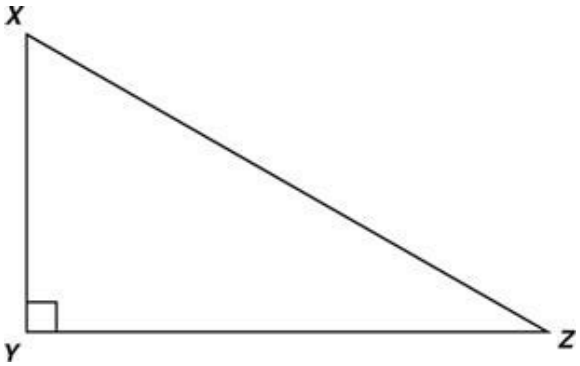
A. 100°

B. 112°

C. 123°

D. 125°

23. **If Triangle *XYZ* is any right triangle with right angle at *Y*, what must be true about Angles $\angle YZX$ and $\angle ZXY$?**



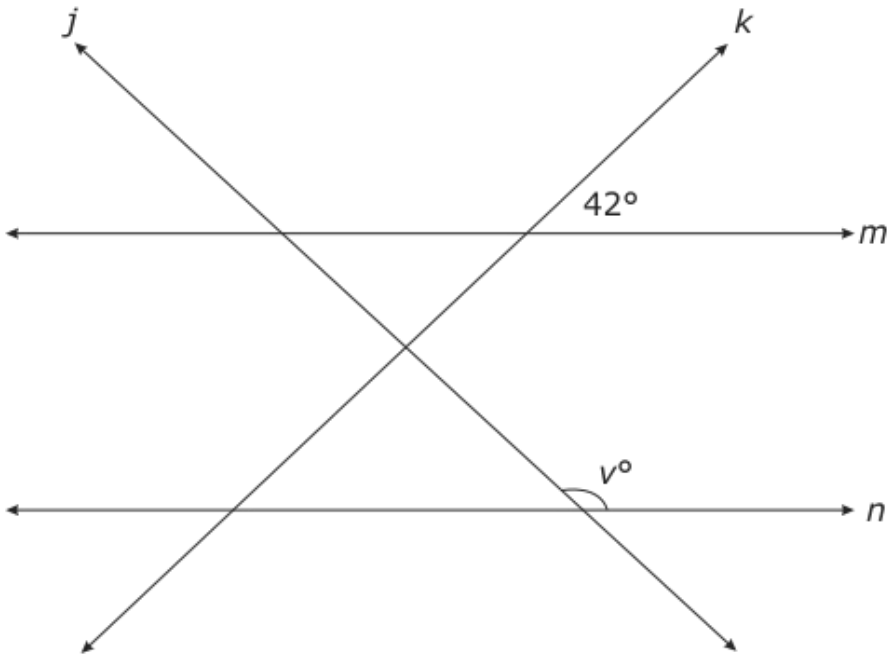
A. They must each be 45°.

B. They must each be 60°.

C. Their sum must equal 90°.

D. Their sum must equal 180°.

24. In the figure below, line *j* is perpendicular to line *k*. Lines *m* and *n* are parallel.



What is the measure of $\angle v$?

A. 130°

B. 132°

C. 138°

D. 140°

25. **David had a tile that was an equilateral triangle. He concluded that each angle of the triangle measured 60°. Which of the following statements best justifies David's conclusion?**

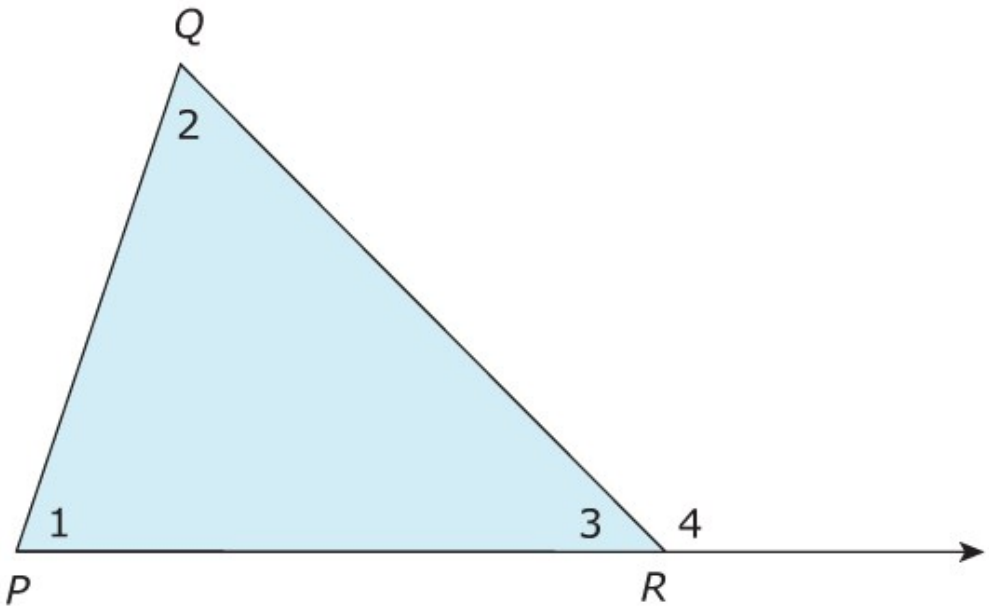
A. All acute angles have a measure of 60°.

B. Every equilateral triangle is also an isosceles triangle.

C. The sum of the measures of the angles in a triangle is 180°, and the three angles are congruent.

D. The measure of an exterior angle of a triangle is the sum of the measures of its two remote interior angles.

26. Triangle *PQR* is shown in the diagram.



Which equation must be true?

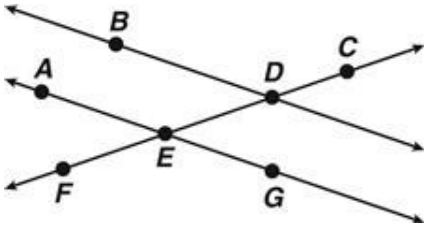
A. $m\angle 1 + m\angle 2 = m\angle 3$

B. $m\angle 1 + m\angle 2 = m\angle 4$

C. $m\angle 2 + m\angle 3 = m\angle 1$

D. $m\angle 2 + m\angle 3 = m\angle 4$

27. **The figure below shows a pair of parallel lines intersected by Line *FC.***



Which angles in the figure are congruent?

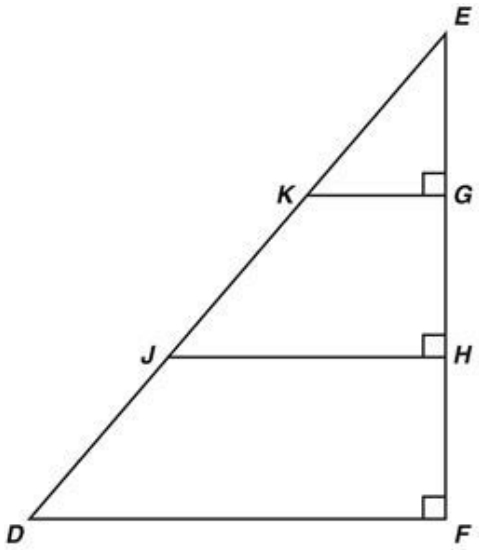
A. $\angle AED$ and $\angle DEG$

B. $\angle FEG$ and $\angle BDC$

C. $\angle BDC$ and $\angle BDE$

D. $\angle AEF$ and $\angle BDC$

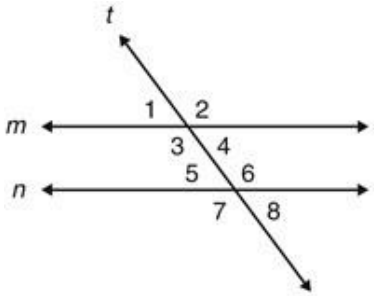
28. **In the figure below, $\overline{KG}$ and $\overline{JH}$ are parallel to $\overline{DF}$ of $\triangle DEF$.**



Which pair of angles is congruent?

A. $\angle DEF$ and $\angle EDF$
B. $\angle KEG$ and $\angle EKG$
C. $\angle GKJ$ and $\angle KJH$
D. $\angle EJH$ and $\angle JDF$

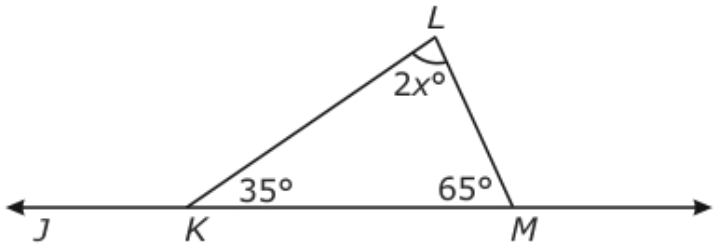
29. **In the figure, Line *t* intersects parallel Lines *m* and *n*.**



Which two angles named below are vertical angles in the figure?

A. $\angle 1$ and $\angle 2$
B. $\angle 2$ and $\angle 3$
C. $\angle 7$ and $\angle 1$
D. $\angle 8$ and $\angle 2$

30. Triangle *KLM* is shown below.



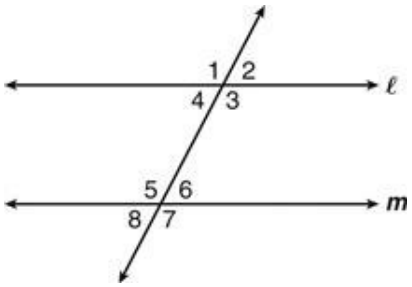
What is the value of *x*?

A. 40

B. 50

C. 80

31. **If $m\angle 4 = m\angle 8$ in the drawing below, which statement can be concluded?**



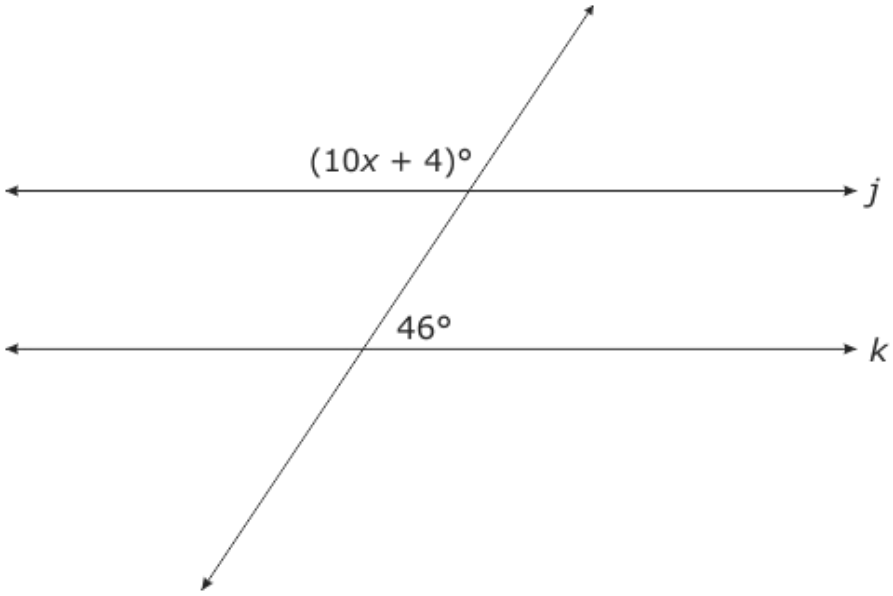
A. $l \perp m$

B. $l \parallel m$

C. $m\angle 2 = m\angle 3$

D. $\angle 6$ and $\angle 7$ are complementary

32. In the figure below, lines j and k are parallel.



What is the value of x?

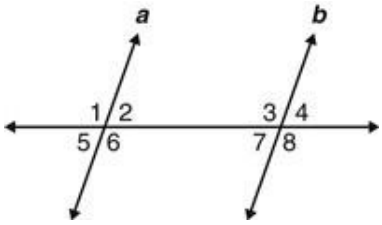
A. 5

B. 13

C. 18

D. 23

33. **Lines *a* and *b* are parallel.**



Which term best describes $\angle 5$ and $\angle 6$?

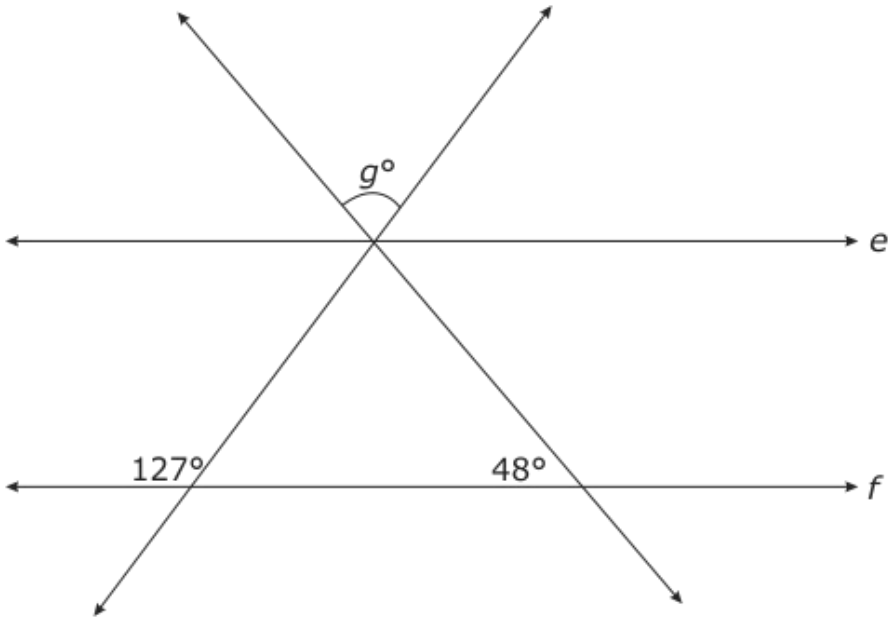
A. supplementary angles

B. corresponding angles

C. complementary angles

D. interior angles

34. Lines e and f are parallel.



What is the measure of $\angle g$?

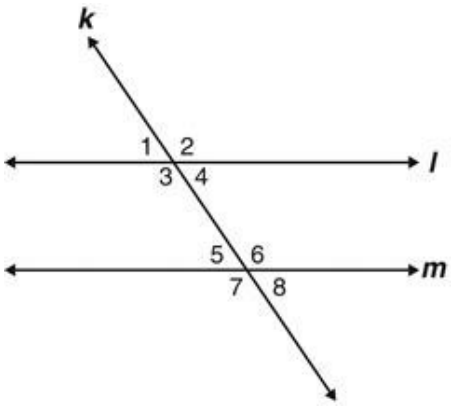
A. 48°

B. 53°

C. 79°

D. 90°

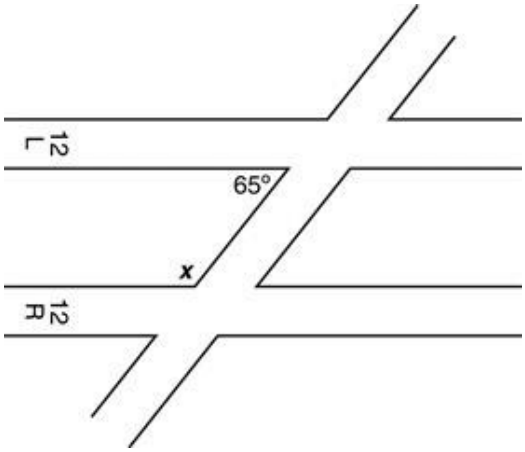
35. **In the diagram below, parallel lines *l* and *m* are cut by transversal *k*.**



Which pair of angles represents alternate interior angles?

A. $\angle 1$ and $\angle 4$
B. $\angle 2$ and $\angle 7$
C. $\angle 3$ and $\angle 6$
D. $\angle 5$ and $\angle 8$

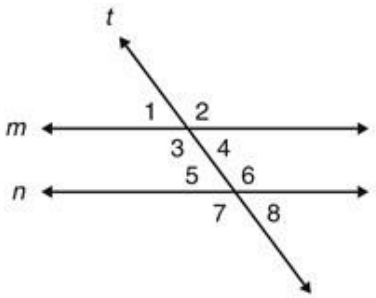
36. **At an airport, runways 12L and 12R are parallel and are intersected by a third runway.**



Mike calculated the value of *x* to be 115°. Which statement justifies Mike's calculations?

A. Adjacent angles formed by perpendicular lines are complementary.
B. Alternate exterior angles are congruent.
C. Consecutive interior angles are supplementary.
D. Vertical angles are congruent.

37. **In the figure below, Line *t* intersects parallel Lines *m* and *n*.**



Which two angles named below are supplementary angles in the figure?

A. $\angle 1$ and $\angle 4$
B. $\angle 2$ and $\angle 6$
C. $\angle 4$ and $\angle 5$
D. $\angle 4$ and $\angle 7$

38. Triangle ABC is similar to triangle DEF.

- Triangle ABC is a right triangle.
- $m\angle A = 10x°$
- $m\angle B = 3x°$
- $m\angle C = 90°$

Which angle measure is closest to the smallest angle in triangle DEF?

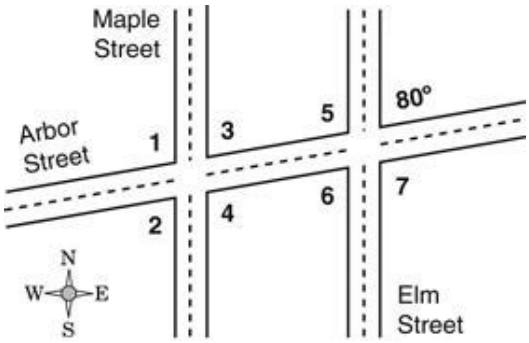
A. 7°

B. 21°

C. 63°

D. 90°

39. **Maple Street and Elm Street are parallel to each other and both intersect Arbor Street.**



Which statement must be true?

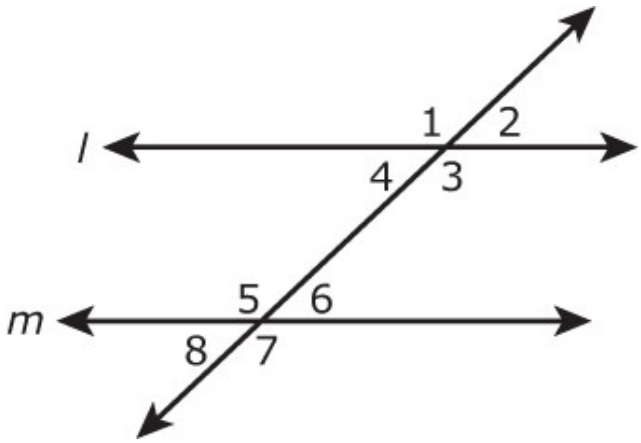
A. $m\angle 1 = 80°$

B. $m\angle 3 = m\angle 7$

C. $m\angle 2 = 80°$

D. $m\angle 7 = m\angle 6$

40. In the diagram, line *l* is parallel to line *m*.



Explained in one step, why is $\angle 3 \cong \angle 5$?

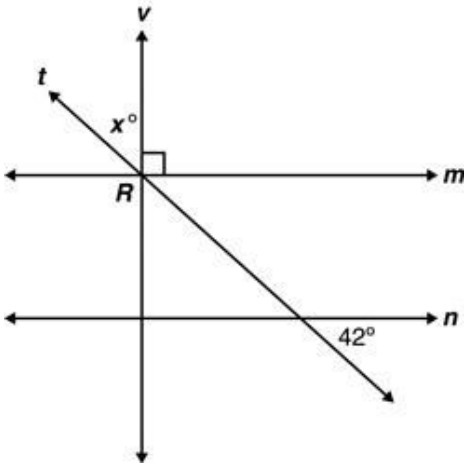
A. If lines are parallel, corresponding angles are congruent.

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

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

D. If lines are parallel, same-side interior angles are congruent.

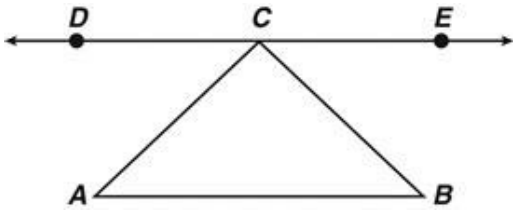
41. **In the diagram below, Transversals *t* and *v* intersect Parallel Lines m and *n* at Point *R*.**



What is the value of *x*?

A. 42
B. 48
C. 132
D. 138

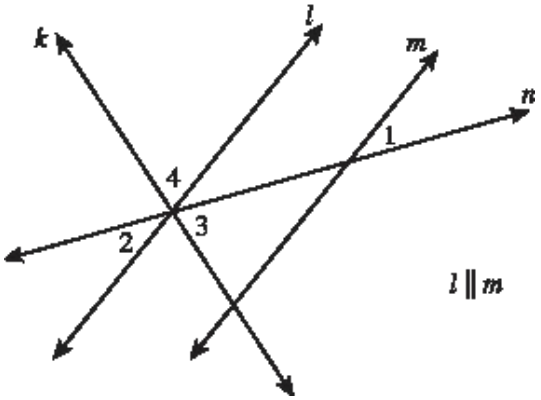
42. **Given $\triangle ABC$ and $\overline{DE}$ through *C* in the diagram below, which condition will guarantee that $\overline{AB}$ is parallel to $\overline{DE}$?**



A. $\angle BAC$ is congruent to $\angle BCE$.
B. $\angle ABC$ is congruent to $\angle BCE$.
C. $\angle ACD$ is congruent to $\angle BCE$.
D. $\angle BAC$ is congruent to $\angle ABC$.

43. Consider the diagram and angle measures shown below.

$m\angle 1 = (3x + 25)°$
$m\angle 2 = (7x + 5)°$
$m\angle 3 = (-2x + 70)°$



What is the value of $m\angle 3$?

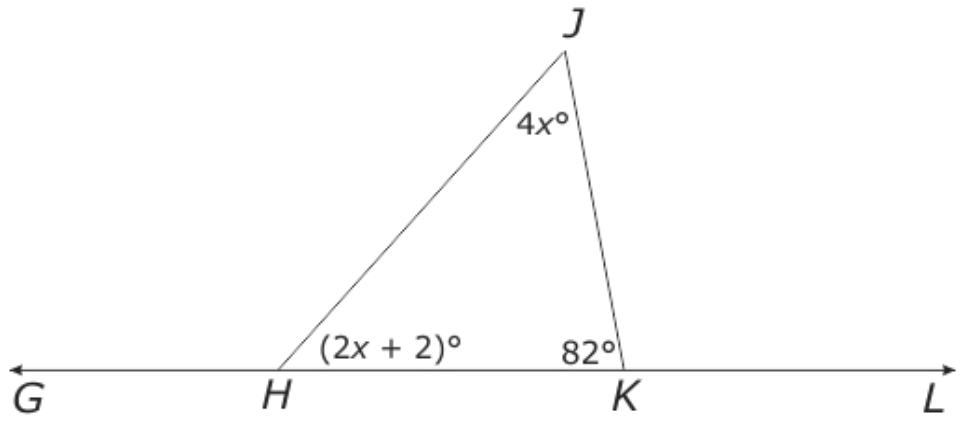
A. $m\angle 3 = 40°$

B. $m\angle 3 = 52°$

C. $m\angle 3 = 60°$

D. $m\angle 3 = 80°$

44. Triangle *HJK* is shown in the figure below.



What is the measure of $\angle GHJ$?

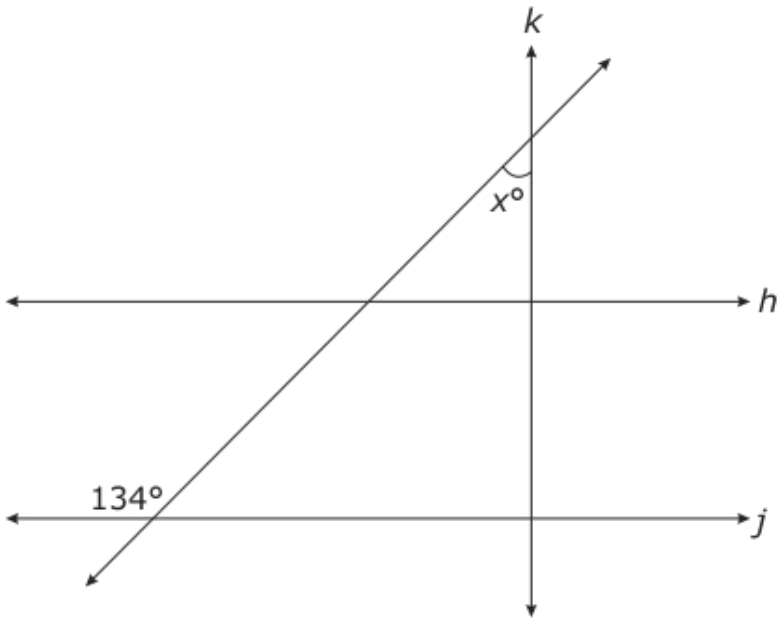
A. 116°

B. 131°

C. 140°

D. 146°

45. In the figure below, line *k* is perpendicular to line *h*. Lines *h* and *j* are parallel.



What is the measure of $\angle x$?

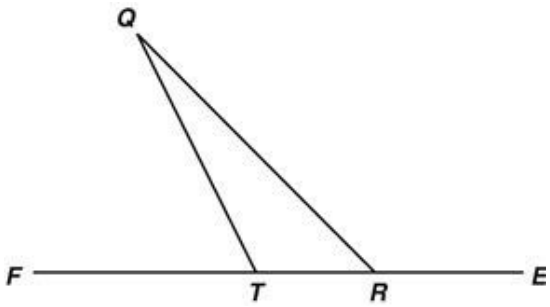
A. 44°

B. 45°

C. 46°

D. 47°

46. **In triangle *RTQ*, $\angle QRE$ and $\angle QTF$ are exterior angles.**



Which of the following is equal to $m\angle QRE$?

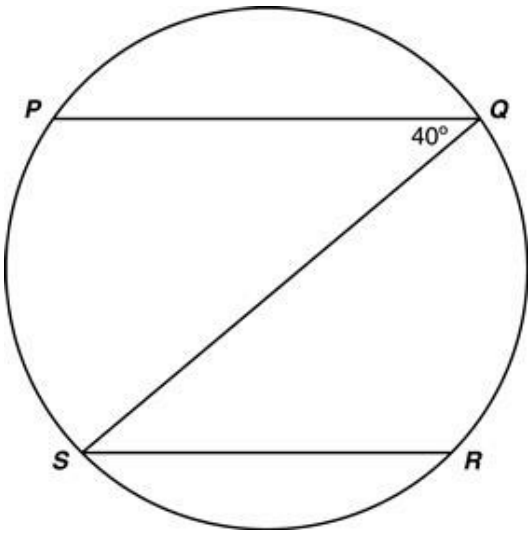
A. $m\angle QTF$

B. $m\angle QRT$

C. $m\angle RTQ + m\angle TRQ$

D. $m\angle TQR + m\angle RTQ$

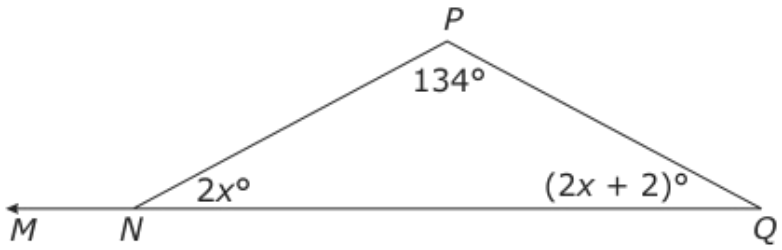
47. **In the circle below, Chords $\overline{PQ}$ and $\overline{RS}$ are parallel.**



What is m$\angle S$?

A. 40°
B. 50°
C. 80°
D. 140°

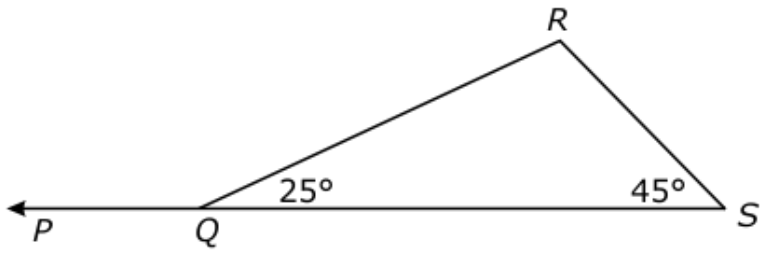
48. Triangle *NPQ* is shown below.



What is the measure of $\angle NQP$?

A. 22°
B. 23°
C. 24°
D. 26°

49. Triangle *QRS* is shown below.



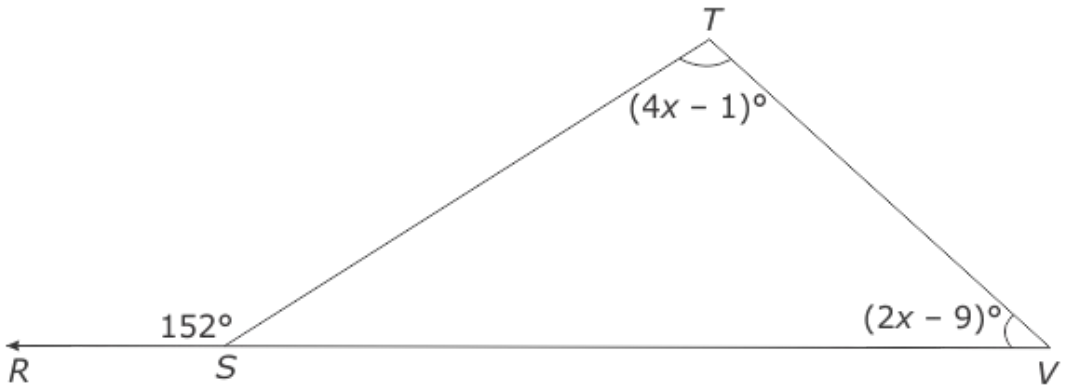
What is measure of angle *QRS*?

A. 110°

B. 135°

C. 155°

50. Triangle *STV* is shown below.



What is the value of *x*?

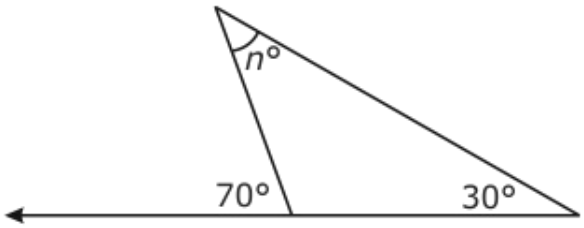
A. 27

B. 32

C. 33

D. 38

51. What is the value of n in the figure below?

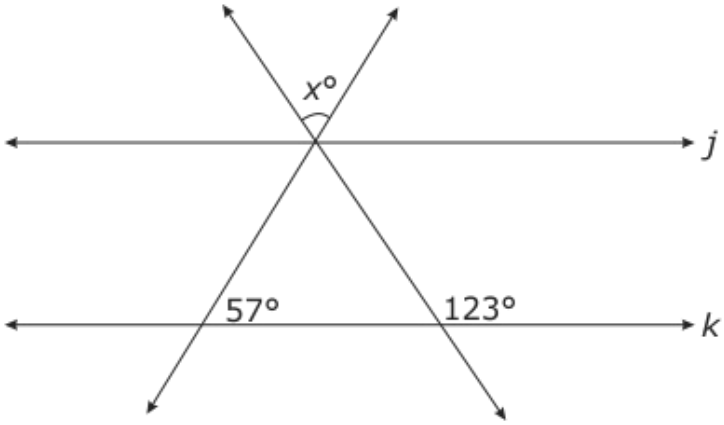


A. 40

B. 60

C. 80

52. In the figure below, lines j and k are parallel.



What is the measure of $\angle x$?

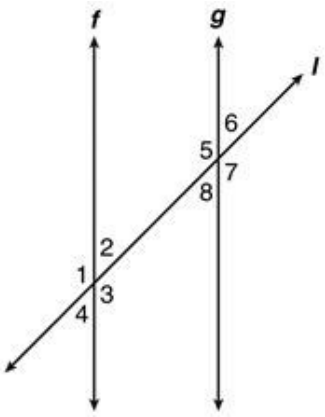
A. 24°

B. 33°

C. 57°

D. 66°

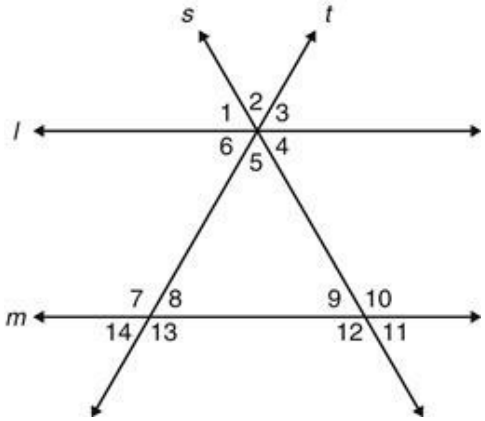
53. **In the diagram below, line *f* is parallel to line *g*, and line *l* intersects them as shown.**



If $m\angle 2$ is increased by moving line *l*, which statement is true?

A. $m\angle 8$ would increase
B. $m\angle 6$ would decrease
C. $m\angle 4$ would remain the same
D. $m\angle 3$ would increase

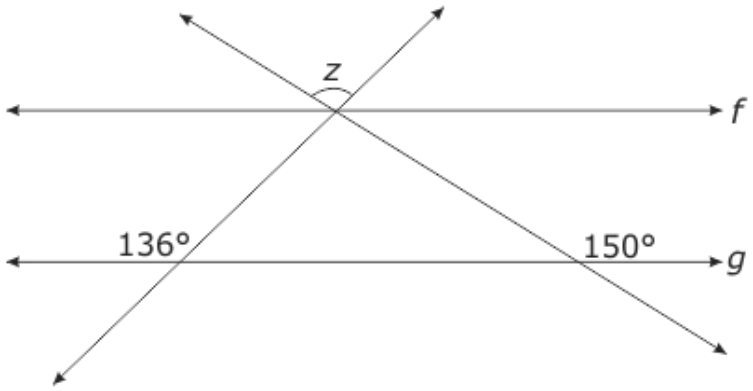
54. **In the figure below, lines *l* and *m* are parallel, and lines *s* and *t* are transversals through *l* and *m*.**



Which statement is true about the angles formed by these lines?

A. Angles 3 and 6 are vertical angles.
B. Angles 2 and 11 are corresponding angles.
C. Angles 4 and 14 are alternate interior angles.
D. Angles 7 and 14 are complementary angles.

55. In the figure below, lines *f* and *g* are parallel.



What is the measure of $\angle z$?

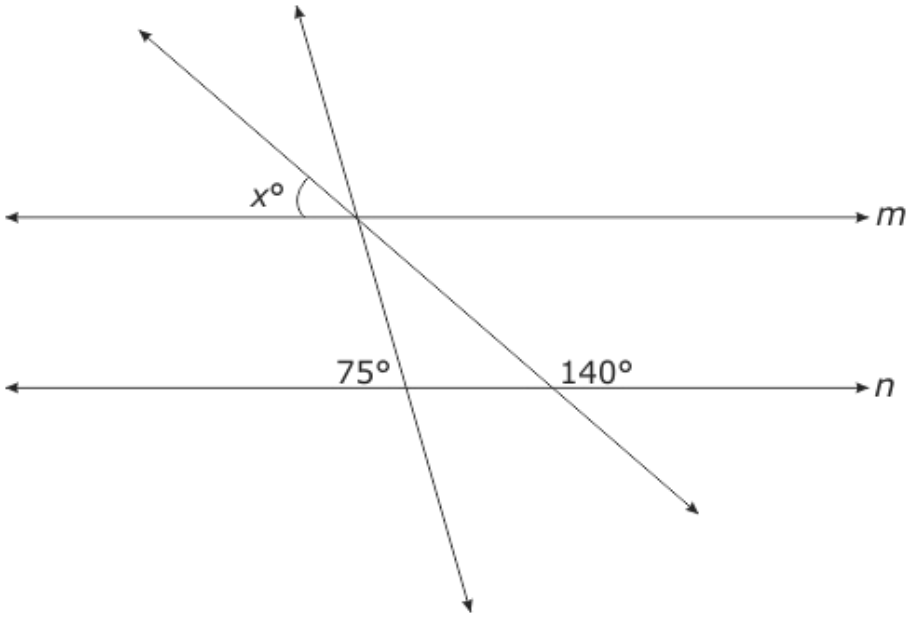
A. 74°

B. 106°

C. 136°

D. 150°

56. In the figure below, lines *m* and *n* are parallel.



What is the measure of $\angle x$?

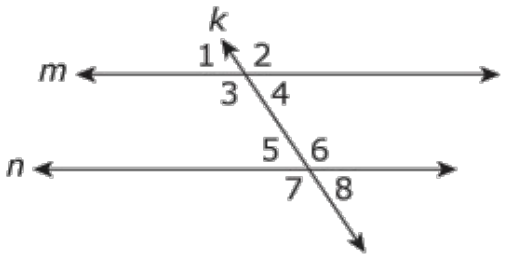
A. 40°

B. 35°

C. 20°

D. 15°

57. In the figure, lines *m* and *n* are parallel.



$\angle 1 \cong \angle 5$ because ___?___, and $\angle 5 \cong \angle 8$.

Therefore, $\angle 1 \cong \angle 8$.

What is the missing reason in the explanation proving $\angle 1 \cong \angle 8$?

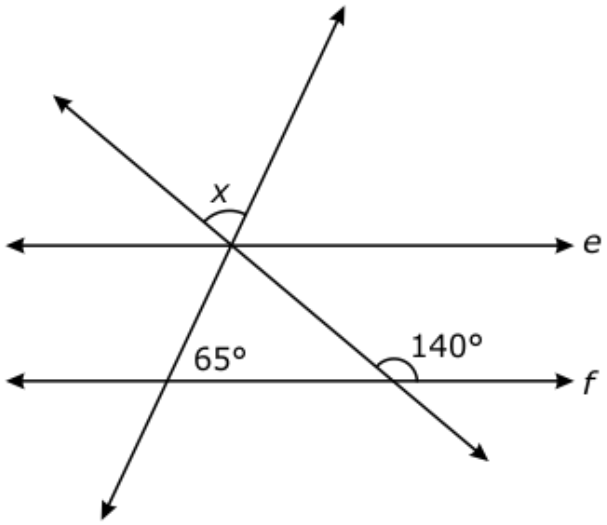
A. If lines are parallel, same side interior angles are congruent.

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

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

D. If lines are parallel, corresponding angles are congruent.

58. In the figure below, lines *e* and *f* are parallel.



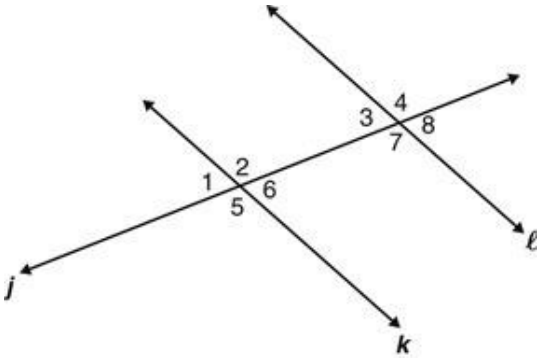
What is the measure of $\angle x$?

A. 40°

B. 55°

C. 75°

59. **Lines *k* and *l* are parallel and cut by transversal *j*.**



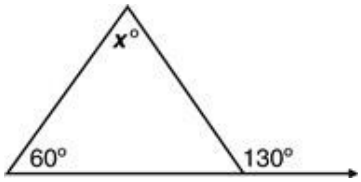
Which statement is a valid conclusion?

A. $\angle 4$ and $\angle 8$ form a linear pair
B. $\angle 2$ and $\angle 7$ form vertical angles
C. $\angle 6$ and $\angle 7$ are complementary
D. $\angle 1$ and $\angle 2$ are congruent

60. **What statement is true for all triangles?**

A. All sides are congruent.
B. All angles are congruent.
C. The sum of the angles is 180°.
D. The sum of the angles is 360°.

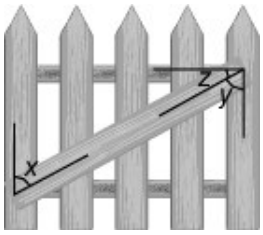
61. **Sharon solved for the value of *x* in the triangle below.**



She said that *x* = 70. Which of the following statements best justifies Sharon's answer?

A. An acute triangle has three acute angles.
B. An obtuse angle is an angle whose measure is between 90° and 180°.
C. The measure of an exterior angle of a triangle is greater than the measure of either of its remote interior angles.
D. The measure of the exterior angle of a triangle equals the sum of the measures of its two remote interior angles.

62. The figure shows a part of a fence with $m\angle x = 66°$.



Which statements correctly identify the relationship and measures of $\angle y$ and $\angle z$?

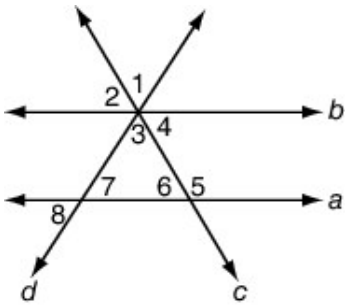
A. $\angle x$ and $\angle y$ are vertical angles, making $m\angle y = 66°$; $\angle y$ and $\angle z$ are supplementary, making $m\angle z = 114°$

B. $\angle x$ and $\angle z$ are corresponding angles, making $m\angle z = 66°$; $\angle y$ and $\angle z$ are complementary, making $m\angle y = 24°$

C. $\angle x$ and $\angle y$ are alternate interior angles, making $m\angle y = 66°$; $\angle y$ and $\angle z$ are complementary, making $m\angle z = 24°$

D. $\angle x$ and $\angle z$ are alternate exterior angles, making $m\angle z = 66°$; $\angle y$ and $\angle z$ are supplementary, making $m\angle y = 114°$

63. In the figure below, lines *a* and *b* are parallel and are cut by transversals *c* and *d*.



Which expression is equivalent to the $m\angle 4$?

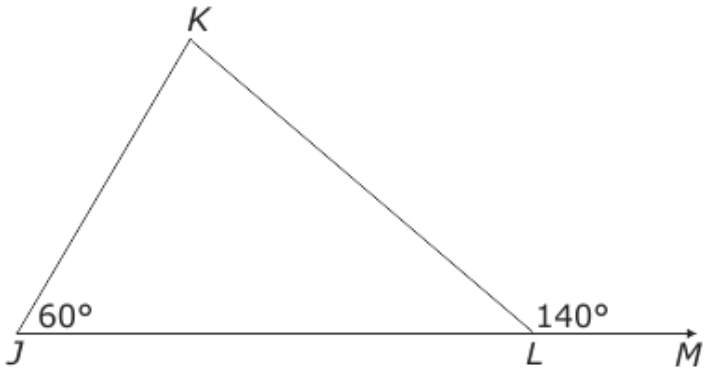
A. $180° - (m\angle 3 + m\angle 7)$

B. $180° - (m\angle 3 + m\angle 6)$

C. $m\angle 3 + m\angle 7$

D. $m\angle 5 + m\angle 1$

64. Triangle *JKL* is shown below.



What is the measure of $\angle JKL$?

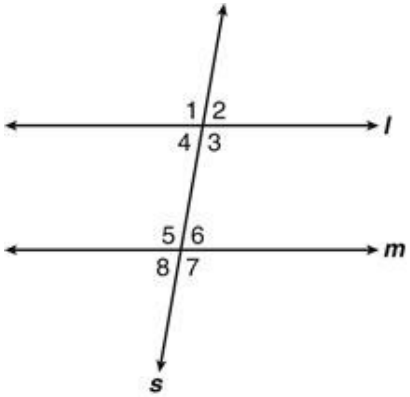
A. 30°

B. 40°

C. 70°

D. 80°

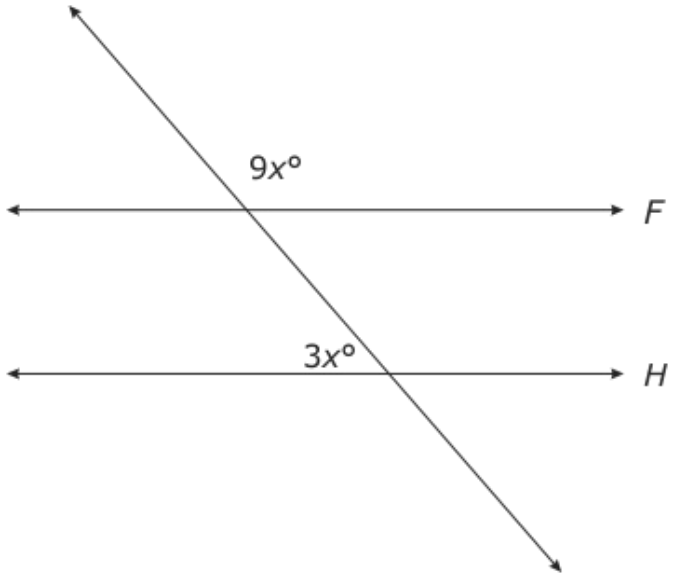
65. **Line *l* is parallel to Line *m*, and Line *s* intersects *l* and *m*.**



Which statement about the angle relationships is true?

A. $\angle 1 \cong \angle 7$ and $\angle 3 \cong \angle 5$
B. $\angle 1 \cong \angle 8$ and $\angle 4 \cong \angle 6$
C. $\angle 1 \cong \angle 5$ and $\angle 2 \cong \angle 7$
D. $\angle 1 \cong \angle 4$ and $\angle 6 \cong \angle 7$

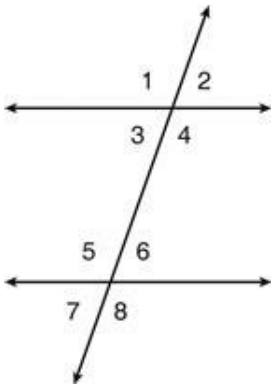
66. Line *F* is parallel to line *H*.



What is the value of *x*?

A. 15
B. 20
C. 25
D. 30

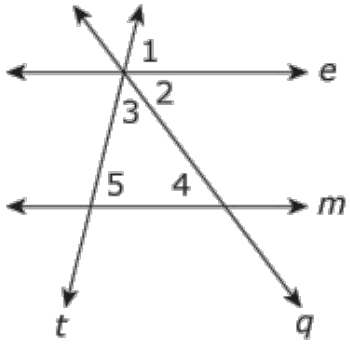
67. **In the following diagram, two parallel lines are cut by a transversal.**



The measure of which angle is equal to the measure of $\angle 1$**?**

A. $m\angle 2$
B. $m\angle 3$
C. $m\angle 4$
D. $m\angle 6$

68. In the diagram below, $m\angle 1 + m\angle 2 + m\angle 3 = 180$.



If line *e* is parallel to line *m*, which set of congruence statements explains why $m\angle 3 + m\angle 4 + m\angle 5 = 180$?

A. $m\angle 1 = m\angle 5; m\angle 2 = m\angle 2; m\angle 3 = m\angle 3$

B. $m\angle 1 = m\angle 5; m\angle 2 = m\angle 4; m\angle 3 = m\angle 3$

C. $m\angle 1 = m\angle 5; m\angle 2 = m\angle 4; m\angle 2 = m\angle 3$

D. $m\angle 2 = m\angle 4; m\angle 4 = m\angle 5; m\angle 3 = m\angle 3$

69. **Angle *P* in Triangle *PQR* has the same measure as Angle *S* in Triangle *STU*. Which other condition is necessary to prove that these triangles are similar?**

A. Angle *Q* has the same measure as Angle *T*.
B. Angle *P* has the same measure as Angle *R*.
C. Side *PQ* has the same measure as Side *ST*.
D. Side *PQ* has twice the measure of Side *ST*.

70. What is the minimum number of angles that must be shown to be congruent to prove that 2 triangles are similar, and why?

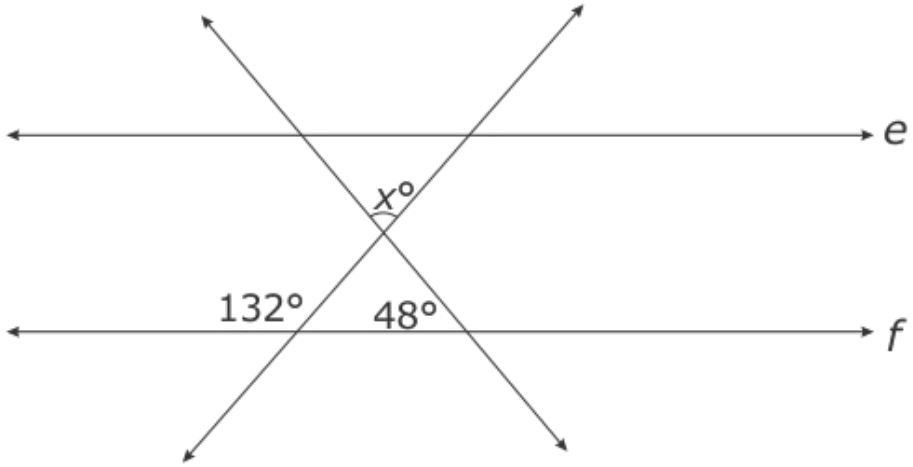
A. zero because the angles of similar triangles are not congruent

B. one because if 1 pair of angles is congruent, then the remaining pairs are congruent

C. two because if 2 pairs of angles are congruent, then the third pair is also congruent

D. three because similar triangles have 3 pairs of congruent angles

71. In the figure below, lines *e* and *f* are parallel.



What is the measure of $\angle x$?

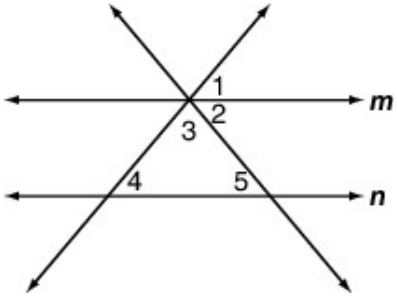
A. 90°

B. 84°

C. 48°

D. 42°

72. In the figure below, lines m and n are parallel, with $m\angle 2 = 62°$ and $m\angle 3 = 73°$.



Which statement correctly describes how to find the measure of $\angle 4$?

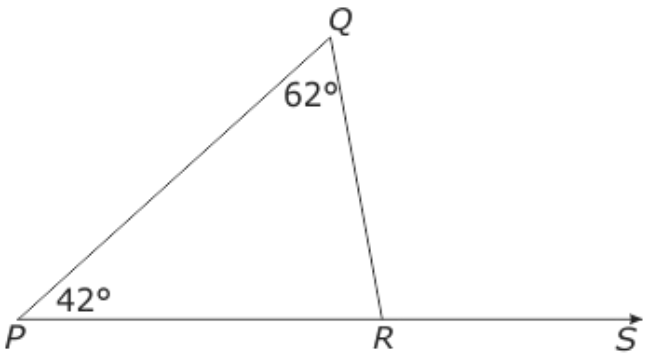
A. Since $\angle 2$ and $\angle 5$ are alternate interior angles, the measure of $\angle 5$ is also 62°. The measures of $\angle 3$, $\angle 4$ and $\angle 5$ must add up to 180°. Since $m\angle 3 + m\angle 5 = 135°$, the measure of $\angle 4$ must be 45°.

B. Since $\angle 2$ and $\angle 5$ are corresponding angles, the measure of $\angle 5$ is also 62°. The measures of $\angle 3$, $\angle 4$ and $\angle 5$ must add up to 180°. Since $m\angle 3 + m\angle 5 = 135°$, the measure of $\angle 4$ must be 45°.

C. Since $\angle 1$ and $\angle 3$ are vertical angles, the measure of $\angle 1$ is also 73°. Since $\angle 1$ and $\angle 5$ are alternate interior angles, the measure of $\angle 5$ is also 73°. The measures of $\angle 3$, $\angle 4$ and $\angle 5$ must add up to 180°. Since $m\angle 3 + m\angle 5 = 146°$, the measure of $\angle 4$ must be 34°.

D. The measures of $\angle 1$, $\angle 2$ and $\angle 3$ must add up to 180°. Since $m\angle 2 + m\angle 3 = 135°$, the measure of $\angle 1$ must be 45°. Since $\angle 1$ and $\angle 5$ are alternate interior angles, the measure of $\angle 5$ is also 45°. The measures of $\angle 3$, $\angle 4$ and $\angle 5$ must add up to 180°. Since $m\angle 3 + m\angle 5 = 118°$, the measure of $\angle 4$ must be 62°.

73. Triangle *PQR* is shown below.



What is the measure of $\angle QRS$?

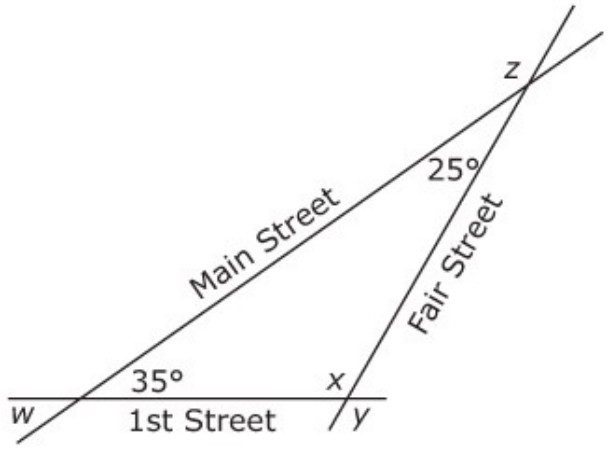
A. 76°

B. 104°

C. 118°

D. 138°

74. The diagram below shows some of the angles formed by three streets on a map.



Which of the following shows both a correct angle measure and a property that justifies the angle measure?

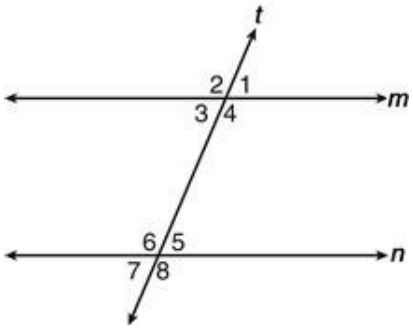
A. $w = 35°$ based on the definition of vertical angles

B. $x = 60°$ based on the sum of interior angles of a triangle

C. $y = 90°$ based on the definition of right angles

D. $z = 115°$ based on the definition of supplementary angles

75. **In the figure below, Line *m* and Line *n* are parallel lines intersected by Line *t*.**



Which pair of angles is congruent?

A. $\angle 1$ and $\angle 8$

B. $\angle 2$ and $\angle 8$

C. $\angle 3$ and $\angle 4$

D. $\angle 4$ and $\angle 7$

76. In the figure below, what is the measure of angle w?

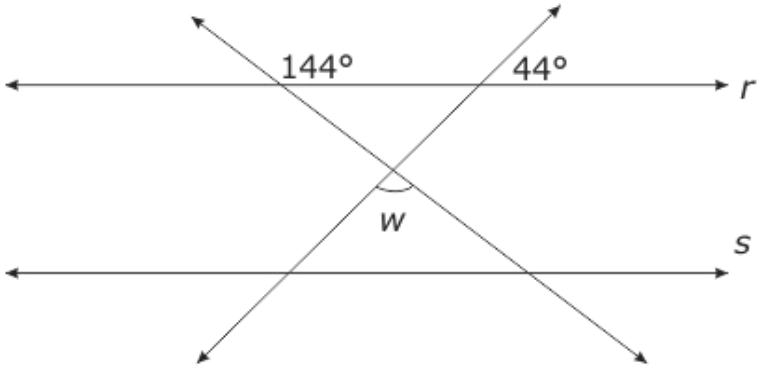
A. 95°

B. 115°

C. 135°

D. 150°

77. In the figure below, lines r and s are parallel.



What is the measure of $\angle w$?

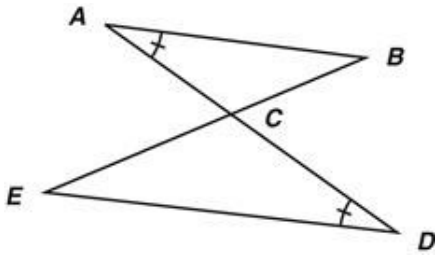
A. 90°

B. 100°

C. 136°

D. 144°

78. **Triangles *ABC* and *DEC* are shown.**



Given $\overline{AB}$ is parallel to $\overline{DE}$, which statement about $\triangle ABC$ and $\triangle DEC$ is true?

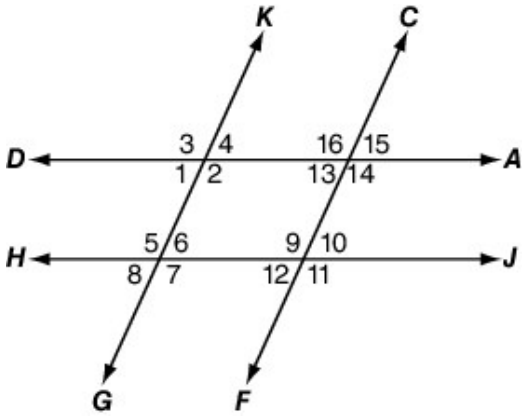
A. $m\angle DAB = m\angle DEB$

B. $m\angle ABE = m\angle DEB$

C. $AB = DE$

D. $AC = DC$

79. In the figure below, line AD is parallel to line HJ and line GK is parallel to line CF.



Which argument **correctly** explains why $m\angle 3 = m\angle 9$?

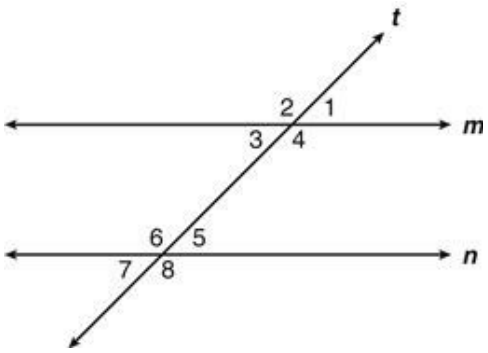
A. $m\angle 3 = m\angle 15$, as they are exterior angles
$m\angle 15 = m\angle 10$, as they are corresponding angles
$m\angle 10 = m\angle 9$, as they are supplementary angles

B. $m\angle 3 = m\angle 8$, as they are vertical angles
$m\angle 8 = m\angle 12$, as they are corresponding angles
$m\angle 12 = m\angle 9$, as they are adjacent angles

C. $m\angle 3 = m\angle 4$, as they are adjacent angles
$m\angle 4 = m\angle 2$, as they are supplementary angles
$m\angle 2 = m\angle 9$, as they are alternate interior angles

D. $m\angle 3 = m\angle 2$, as they are vertical angles
$m\angle 2 = m\angle 16$, as they are alternate interior angles
$m\angle 16 = m\angle 9$, as they are corresponding angles

80. **Parallel Lines *m* and *n* are cut by Transversal *t* as shown.**



Which statement is true?

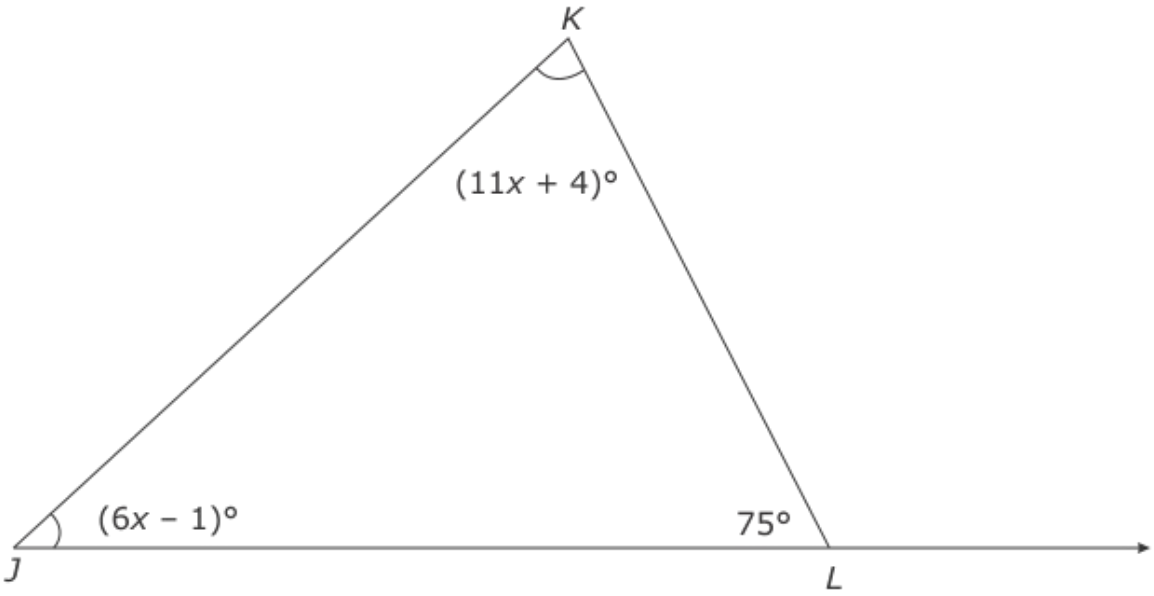
A. $\angle 1 \cong \angle 4$

B. $\angle 3 \cong \angle 4$

C. $\angle 2 \cong \angle 7$

D. $\angle 3 \cong \angle 5$

81. Triangle *JKL* is shown below.



What is the measure of angle *KJL*?

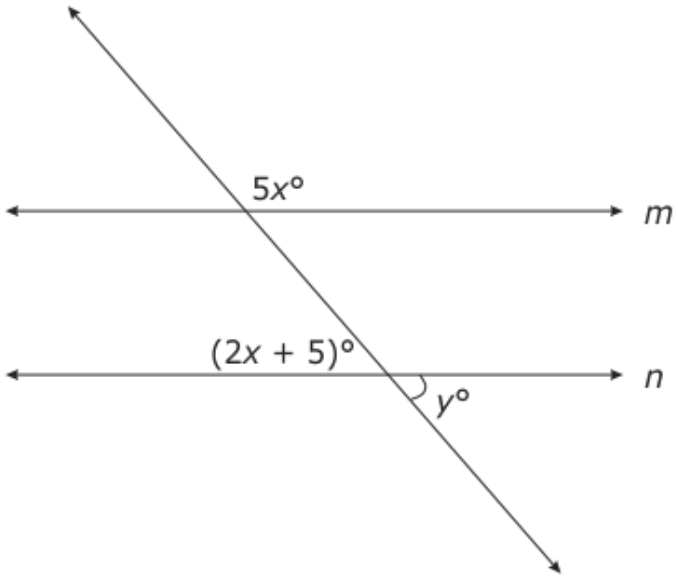
A. 15°

B. 20°

C. 35°

D. 60°

82. In the figure below, lines *m* and *n* are parallel.



What is the measure of angle *y*?

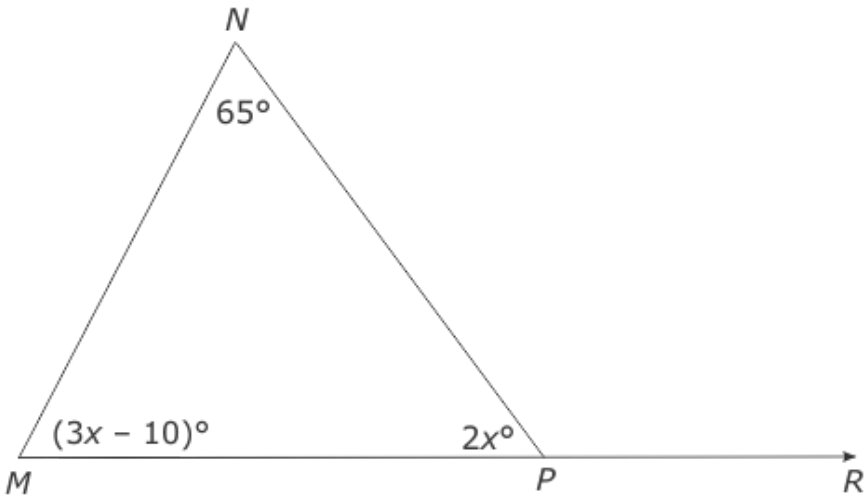
A. 25°

B. 36°

C. 55°

D. 88°

83. Triangle *MNP* is shown below.



What is the measure of $\angle NPR$?

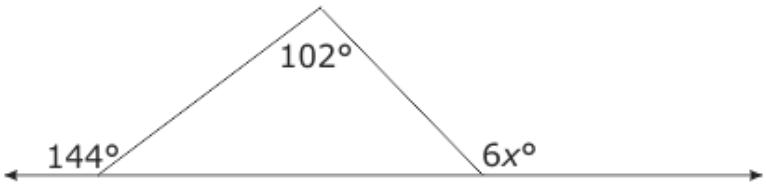
A. 115°

B. 125°

C. 130°

D. 140°

84. What is the value of *x* in the figure below?



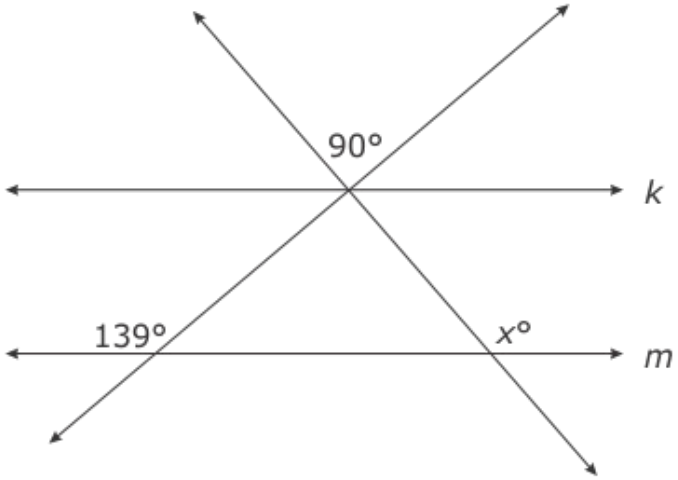
A. 17

B. 23

C. 24

D. 36

85. In the figure below, lines k and m are parallel.



What is the measure of $\angle x$?

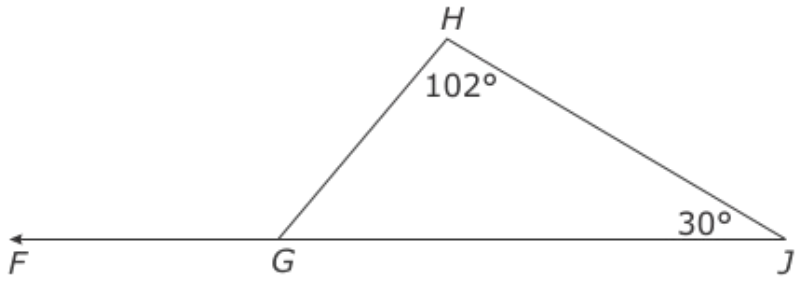
A. 41°

B. 49°

C. 131°

D. 139°

86. Triangle GHJ is shown below.



What is the measure of $\angle FGH$?

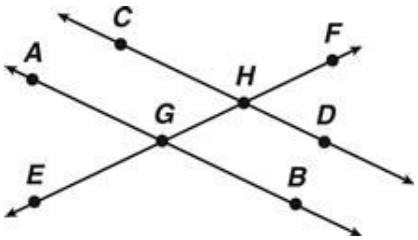
A. 78°

B. 102°

C. 132°

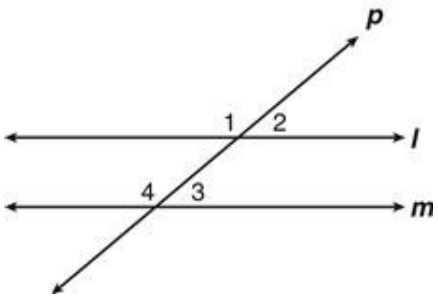
D. 150°

87. **In the diagram, which condition ensures that lines $\overline{AB}$ and $\overline{CD}$ are parallel?**



A. $\angle AGE$ is the supplement of $\angle EGB$.
B. $\angle CHF$ is the supplement of $\angle DHF$.
C. $\angle AGE$ is congruent to $\angle BGH$.
D. $\angle AGE$ is congruent to $\angle DHF$.

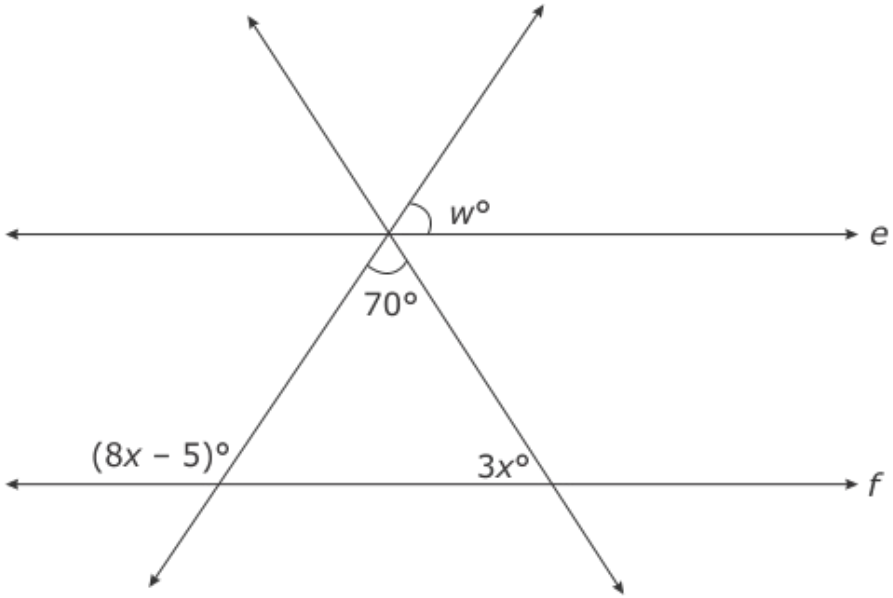
88. **In the figure, lines *l* and *m* are parallel lines cut by transversal *p*.**



Andrea said that if $m\angle 2 = 40°$, then $m\angle 3$ must also be equal to 40°. Which justifies Andrea's statement?

A. Alternate exterior angles are congruent.
B. Alternate interior angles are congruent.
C. Corresponding angles are congruent.
D. Consecutive interior angles are supplementary.

89. In the figure below, lines *e* and *f* are parallel.



What is the measure of $\angle w$?

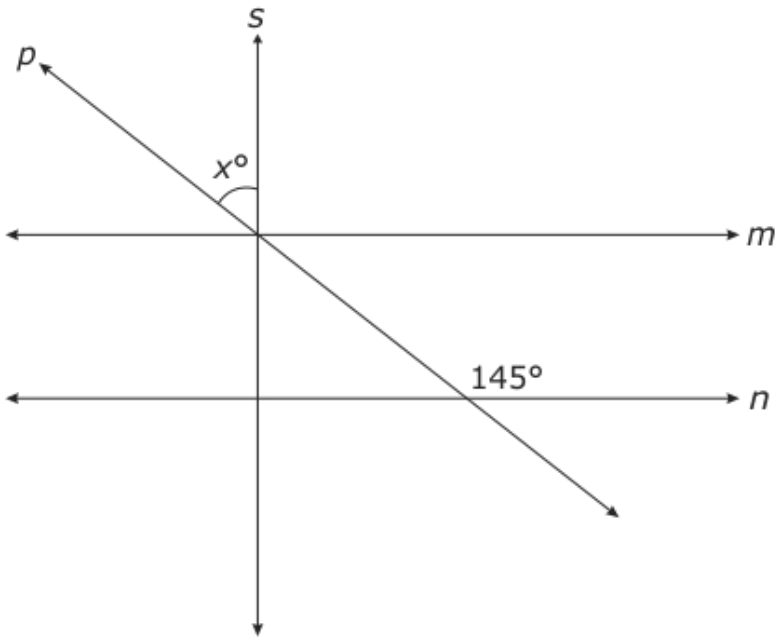
A. 45°

B. 50°

C. 65°

D. 70°

90. In the figure below, lines *m* and *n* are parallel. Line *s* is perpendicular to line *m*.



What is the measure of $\angle x$?

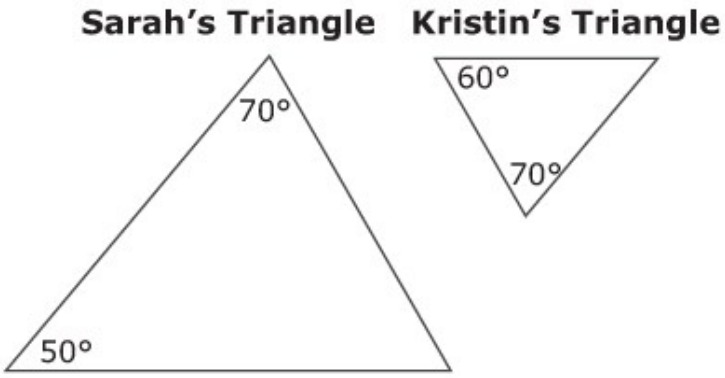
A. 60°

B. 55°

C. 40°

D. 35°

91. Sarah drew a triangle. She claimed that if there were another triangle with two angles congruent to two of the angles in her original triangle, the two triangles would be similar. Kristin drew a triangle to determine if Sarah's statement was true.



Which statement best explains the relationship between Sarah's triangle and Kristen's triangle?

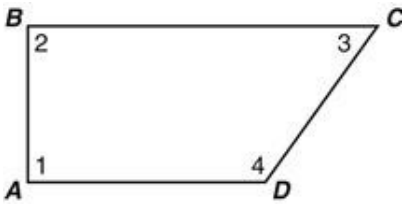
A. Kristin's triangle should be larger than Sarah's triangle since 60° > 50°.

B. Kristin's triangle appears to be similar to Sarah's triangle but does not have the two congruent angles.

C. Kristin's triangle needs an angle smaller than 50° since her triangle is smaller than Sarah's triangle.

D. Kristin's triangle has two congruent angles to Sarah's triangle and is similar to Sarah's triangle.

92. **In the figure below, $\overline{BC}$ is parallel to $\overline{AD}$.**



Which of these statements MUST always be true?

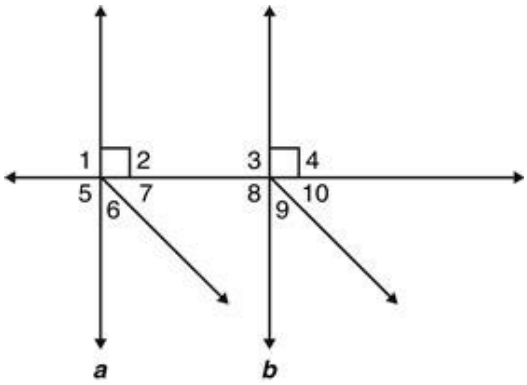
A. $m\angle 1 = m\angle 2$

B. $m\angle 1 = m\angle 3$

C. $m\angle 1 + m\angle 2 = 180°$

D. $m\angle 1 + m\angle 3 = m\angle 2 + m\angle 4$

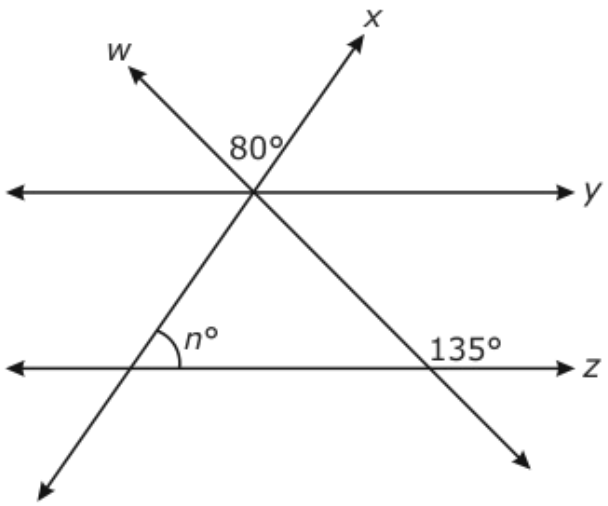
93. **Lines *a* and *b* are parallel, $\angle 6 \cong \angle 7$, and $\angle 9 \cong \angle 10$.**



Which angles are complementary?

A. $\angle 1$ and $\angle 5$
B. $\angle 3$ and $\angle 6$
C. $\angle 7$ and $\angle 9$
D. $\angle 8$ and $\angle 10$

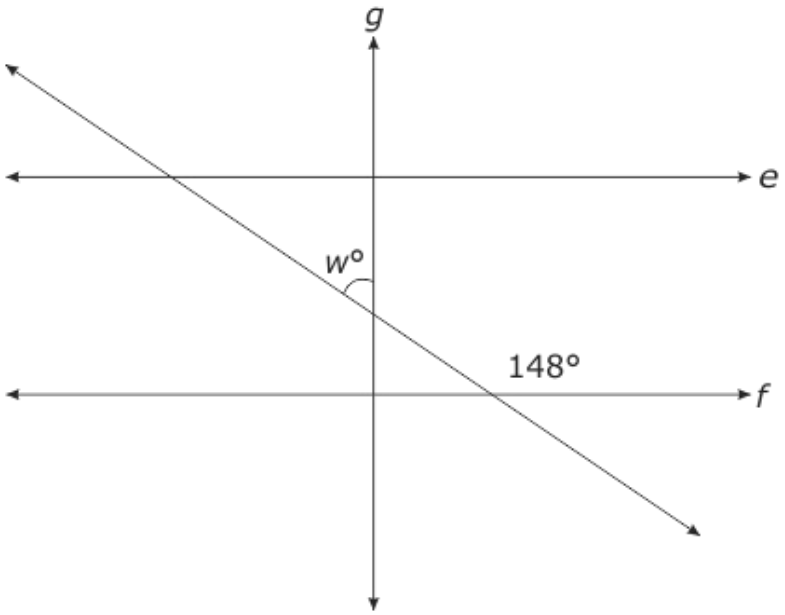
94. In the figure below, lines *y* and *z* are parallel.



What is the value of *n*?

A. 45
B. 55
C. 80

95. In the figure below, lines *e* and *f* are parallel. Line *g* is perpendicular to line *e*.



What is the measure of angle *w*?

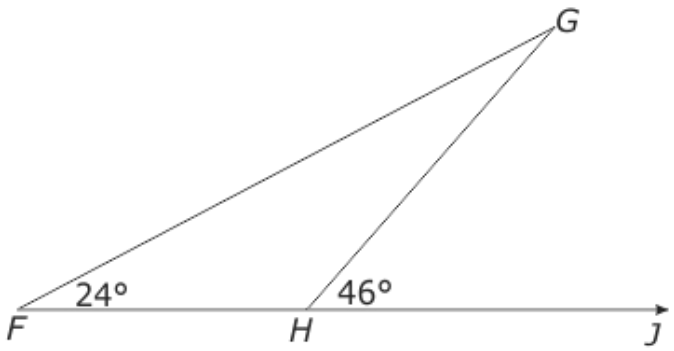
A. 32°

B. 45°

C. 52°

D. 58°

96. Triangle *FGH* is shown below.



What is the measure of $\angle FGH$?

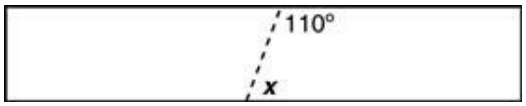
A. 22°

B. 23°

C. 44°

D. 46°

97. **Andrew cut a rectangular piece of wood along a straight line, as shown below.**



Andrew calculated that $x = 70°$. Which of the following statements justifies Andrew's calculations?

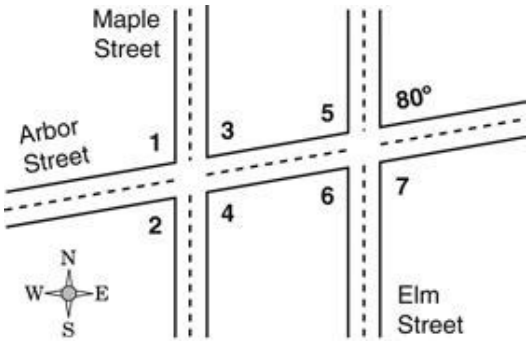
A. Vertical angles are congruent.

B. Alternate exterior angles are congruent.

C. Consecutive interior angles are supplementary.

D. Adjacent angles formed by perpendicular lines are complementary.

98. **Maple Street and Elm Street are parallel to each other and both intersect Arbor Street.**



Which statement is not true?

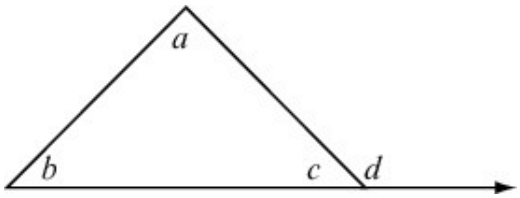
A. $m\angle 1 = m\angle 5$

B. $m\angle 3 = m\angle 6$

C. $m\angle 2 = 80°$

D. $m\angle 4 = 80°$

99. Using the figure below, which table **correctly** lists the steps and reasons used to find the measure of angle *d*?



A.

Steps	Reasons
$m\angle b + m\angle c + m\angle d = m\angle a$	Sum of supplementary angles
$m\angle a = m\angle d$	Opposite interior angles
$m\angle a + m\angle b + m\angle c = m\angle d$	Transitive property of equality

B.

Steps	Reasons
$m\angle b + m\angle c = m\angle a$	Sum of interior angles of a triangle
$m\angle a = m\angle d$	Opposite interior angles
$m\angle b + m\angle c = m\angle d$	Transitive property of equality

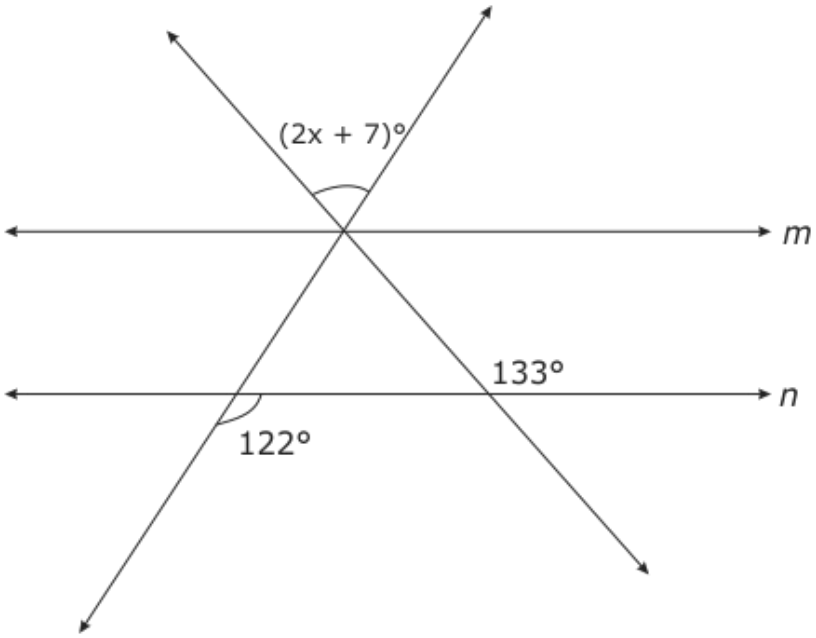
C.

Steps	Reasons
$m\angle a + m\angle b + m\angle c = 180°$	Sum of interior angles of a triangle
$m\angle d + m\angle c = 180°$	Sum of supplementary angles
$m\angle a + m\angle b + m\angle c = m\angle d + m\angle c$	Transitive property of equality
$m\angle a + m\angle b = m\angle d$	Subtraction property of equality

D.

Steps	Reasons
$m\angle a + m\angle b + m\angle c = 180°$	Sum of interior angles of a triangle
$m\angle d + m\angle b = 180°$	Sum of supplementary angles
$m\angle a + m\angle b + m\angle c = m\angle d + m\angle b$	Transitive property of equality
$m\angle a + m\angle c = m\angle d$	Subtraction property of equality

100. In the figure below, lines *m* and *n* are parallel.



What is the value of *x*?

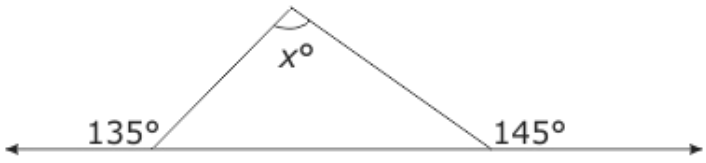
A. 34

B. 58

C. 63

D. 75

101. In the figure below, what is the measure of $\angle x$?



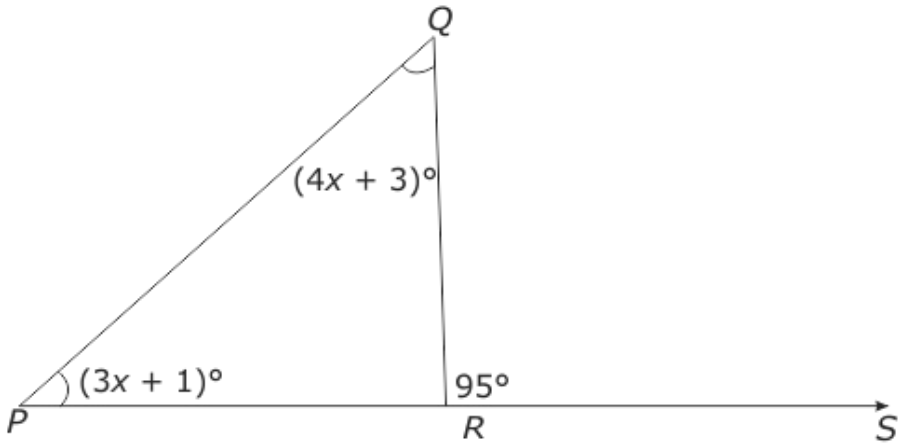
A. 80°

B. 90°

C. 100°

D. 110°

102. Triangle *PQR* is shown below.



What is the value of *x*?

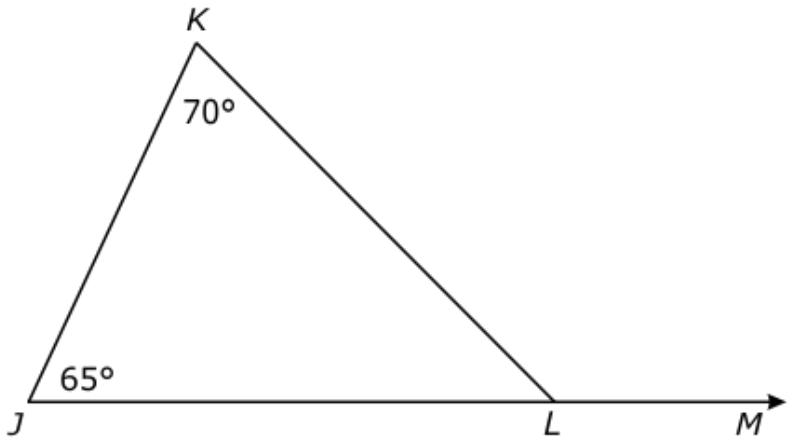
A. 12

B. 13

C. 25

D. 40

103. Triangle *JKL* is shown below.



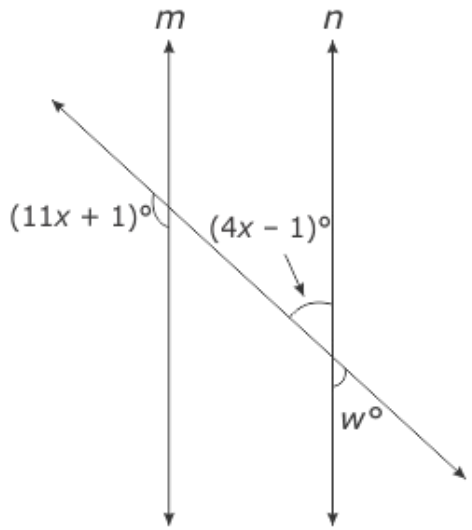
What is the measure of $\angle KLM$?

A. 135°

B. 115°

C. 110°

104. In the figure below, lines m and n are parallel.



What is the measure of $\angle w$?

A. 34°

B. 45°

C. 47°

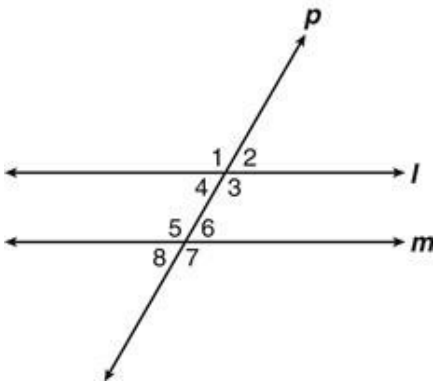
D. 63°

105. **Which conclusion of the following statement must always be true?**

"If angle 1 and angle 2 are alternate interior angles of parallel lines cut by a transversal, then"

A. angle 1 and angle 2 are supplementary.
B. angle 1 and angle 2 are complementary.
C. angle 1 and angle 2 are a linear pair.
D. angle 1 is congruent to angle 2.

106. **In the figure, Lines *l* and *m* are parallel and cut by Transversal *p*.**



Which list gives the fewest measures of angles needed to find the measures of all eight angles?

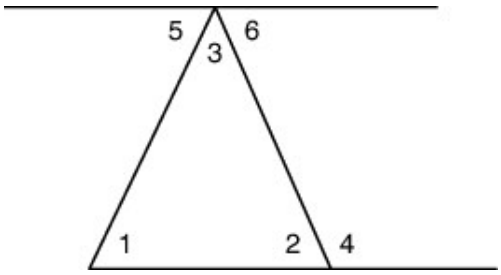
A. $m\angle 1$

B. $m\angle 1, m\angle 3$

C. $m\angle 1, m\angle 3, m\angle 5$

D. $m\angle 1, m\angle 3, m\angle 5, m\angle 7$

107. Which expression is equivalent to the measure of $\angle 4$ in the image below?



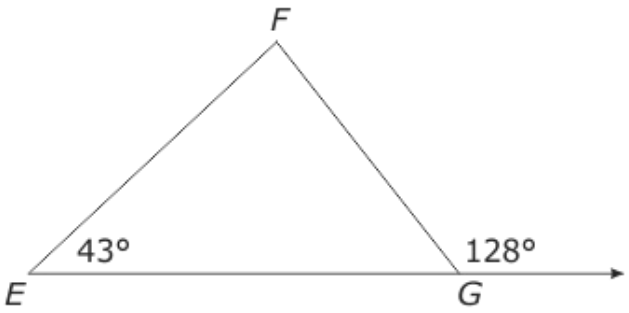
A. $m\angle 1 + m\angle 2$

B. $m\angle 1 + m\angle 3$

C. $m\angle 2 + m\angle 6$

D. $m\angle 5 + m\angle 6$

108. Triangle *EFG* is shown below.



What is the measure of $\angle EFG$?

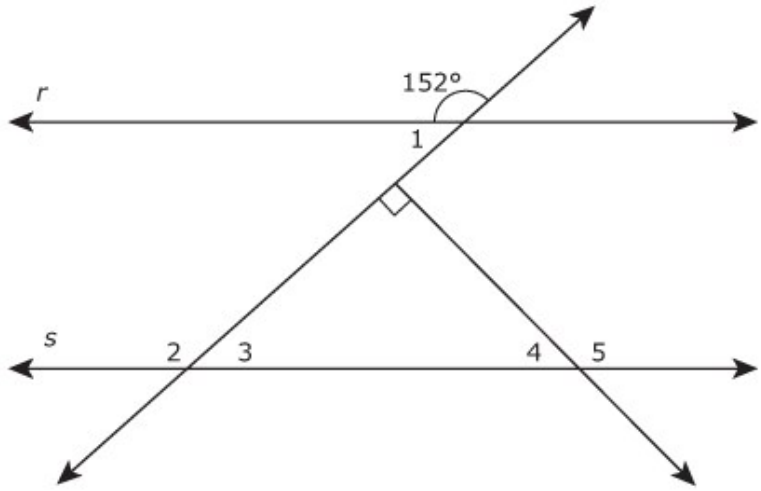
A. 52°

B. 85°

C. 90°

D. 137°

109. In the diagram, line *r* is parallel to line *s*.



Based on the information provided in the diagram, which statement is true of $m\angle 5$?

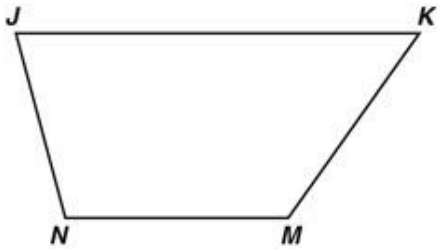
A. $m\angle 5 = 152°$ because $m\angle 4 + m\angle 5 = 180°$.

B. $m\angle 5 = 152°$ because $m\angle 2 = 152°$, and $m\angle 2 = m\angle 5$.

C. $m\angle 5 = 118°$ because $m\angle 2 = 152°$, $m\angle 3 = 28°$, and $m\angle 3 + 90 = m\angle 5$.

D. $m\angle 5 = 118°$ because $m\angle 2 = 152°$, $m\angle 3 = 28°$, and $m\angle 3 + m\angle 4 = m\angle 5$.

110. **In the figure below, $\overline{JK}$ is parallel to $\overline{NM}$.**



Which statement about the figure must be true?

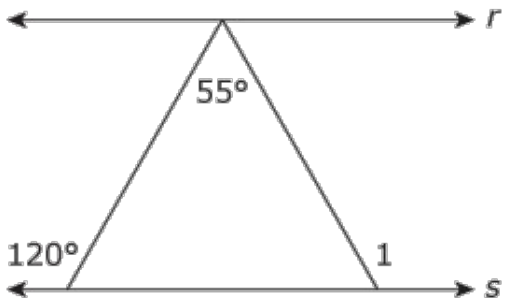
A. $180° - m\angle NJK = m\angle JKM$

B. $180° - m\angle KMN = m\angle JKM$

C. $m\angle JNM + m\angle NMK = 180°$

D. $m\angle JNM + m\angle JKM = 180°$

111. Line *r* is parallel to line *s*.



What is the measure of $\angle 1$?

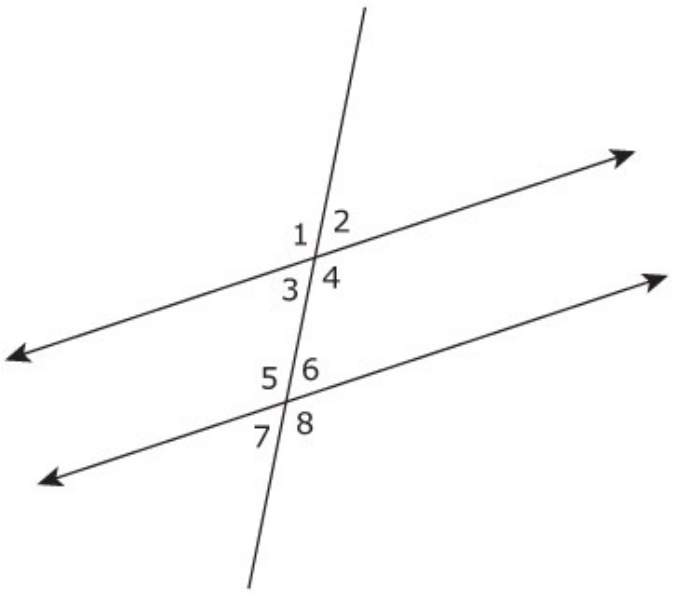
A. 115°

B. 120°

C. 125°

D. 175°

112. The diagram shows two parallel lines cut by a transversal line segment.



Which relationship is true?

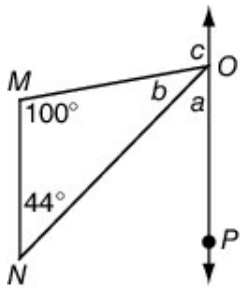
A. $m\angle 1 + m\angle 8 = 90^o$

B. $m\angle 3 + m\angle 5 = 180^o$

C. $\angle 1 \cong \angle 7$

D. $\angle 2 \cong \angle 4$

113. In the figure below, line segment *MN* is parallel to line *OP*.



Which of these **best** describes the measure of angle *c*?

A. The measure of angle *c* is 36° because angle *b* and angle *c* are vertical angles.

B. The measure of angle *c* is 144° because of the properties of the exterior angles of a triangle.

C. The measure of angle c is 44° because line segment NO is a transveral and angles N and b are corresponding angles.

D. The measure of angle *c* is 100° because line segment *MO* is a transversal and angles *m* and *c* are alternate interior angles.