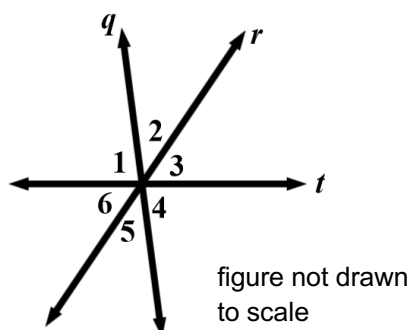


GEOMETRY

1. Reflex angles are:
 - a. less than 90°
 - b. greater than 90° but less than 180°
 - c. equal to 180°
 - d. greater than 180°
2. Straight angles are:
 - a. less than 90°
 - b. greater than 90° but less than 180°
 - c. equal to 180°
 - d. greater than 180°
3. The figure shows lines q , r , and t intersecting to form angles numbered 1, 2, 3, 4, 5, and 6. All three lines lie in the same plane.



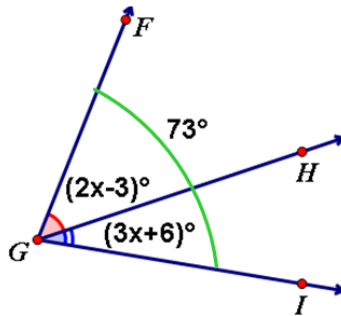
Based on the figure, which of the individual statements would provide enough information to conclude that line q is perpendicular to line t ?

- a. $m\angle 1 = 90^\circ$
 - b. $m\angle 3 = 90^\circ$
 - c. $m\angle 1 = m\angle 4$
 - d. $m\angle 2 + m\angle 3 = 90^\circ$
 - e. $m\angle 5 + m\angle 6 = 90^\circ$
 - f. $m\angle 1 + m\angle 6 = 90^\circ$
4. You can bisect an angle by:
 - a. Folding the paper containing the angle so that rays representing the sides of the angle overlap.
 - b. finding the intersection of the locus and the vertex
 - c. finding the coordinates of the midpoint
 - d. a and b only

5. Angles that are a linear pair (circle all that apply) :
- sum to 90 degrees
 - sum to 180 degrees
 - are adjacent
 - form a straight angle
6. An angle measures 69° . What is the measure of its complement?
- 21°
 - 31°
 - 111°
 - 121°
7. $\angle ABC$ is bisected by \overrightarrow{BD} . If $m\angle ABC = 71^\circ$, then what is $m\angle DBC$?
- 19°
 - 35.5°
 - 109°
 - 142°

8.

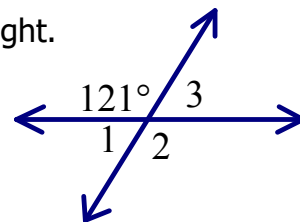
What is $m\angle HGI$ and $m\angle FGH$?



- $m\angle HGI = 14^\circ$, $m\angle FGH = 59^\circ$
- $m\angle HGI = 59^\circ$, $m\angle FGH = 14^\circ$
- $m\angle HGI = 25^\circ$, $m\angle FGH = 48^\circ$
- $m\angle HGI = 48^\circ$, $m\angle FGH = 25^\circ$

9. Find the measures of the angles in the figure to the right.

- $m\angle 1 = 121^\circ$, $m\angle 2 = 59^\circ$, $m\angle 3 = 59^\circ$
- $m\angle 1 = 59^\circ$, $m\angle 2 = 121^\circ$, $m\angle 3 = 59^\circ$
- $m\angle 1 = 69^\circ$, $m\angle 2 = 121^\circ$, $m\angle 3 = 69^\circ$
- $m\angle 1 = 69^\circ$, $m\angle 2 = 69^\circ$, $m\angle 3 = 121^\circ$



10. The length and the width of a rectangle $2x + 3$ and $x + 1$ respectively. If the perimeter is 50 units, what is the area?

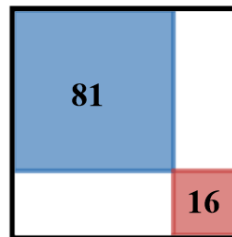
- a. 120 square units
- b. 136 square units
- c. 156 square units
- d. 162 square units

11. One of the bases of a trapezoid is 15 and its midsegment is 12. If the height and the second base of the trapezoid are of equal length, what is the area of the trapezoid?

- a. 90 unit²
- b. 105 unit²
- c. 108 unit²
- d. 115 unit²

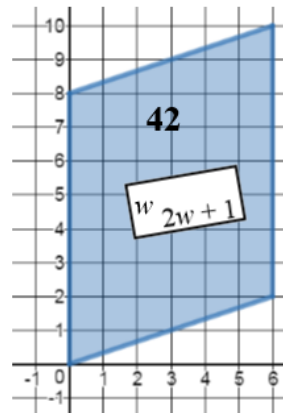
12. A square is dissected into two smaller squares and two rectangles. The area of two squares is given. What is the sum of the areas of the two rectangles?

- a. 66 unit²
- b. 72 unit²
- c. 76 unit²
- d. 81 unit²



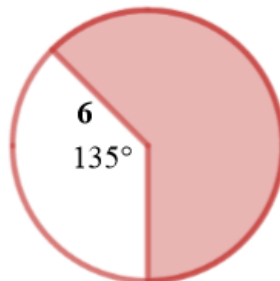
13. A rectangle, with dimensions w by $(2w + 1)$, is inside a parallelogram as shown. If the area of the region inside the trapezoid and outside the rectangle is 42 square units, what is the perimeter of the rectangle?

- a. 11 units
- b. 12 units
- c. 13 units
- d. 14 units



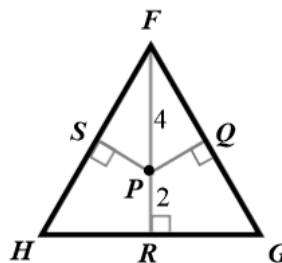
14. What is the area of the sector shaded in the figure?

- a. $18\pi u^2$
- b. $22.5\pi u^2$
- c. $27\pi u^2$
- d. $36\pi u^2$



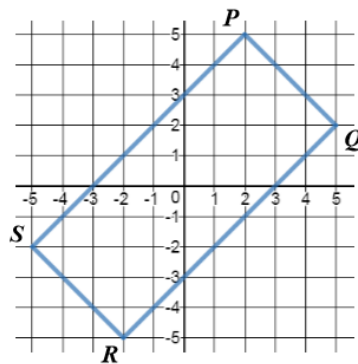
15. An equilateral $\triangle FGH$ with segment measures as indicated. Three statements are true; one is false. Which statement is **false**?

- a. $m\angle HFR = 30^\circ$
- b. $m\angle SPR = 100^\circ$
- c. The perimeter of $\triangle FGH = 12\sqrt{3} u$
- d. The area of $\triangle FGH = 12\sqrt{3} u^2$



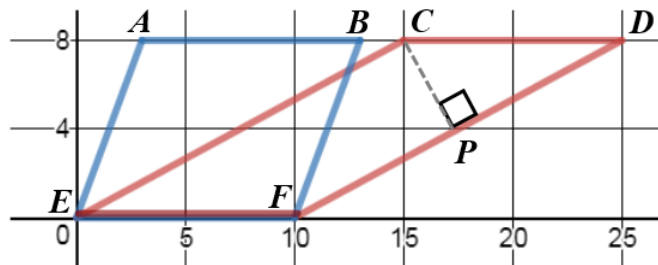
16. What is the area of rectangle PQRS?

- a. $30\sqrt{2} u^2$
- b. $36\sqrt{2} u^2$
- c. $42 u^2$
- d. $60 u^2$



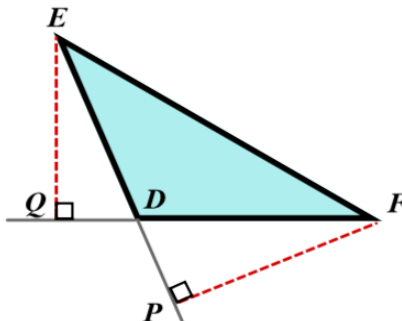
17. Two parallelograms are shown on the coordinate plane. Which of the following statements is true?

- a. $A(ABFE) < A(CDFE)$
- b. $A(ABFE) > A(CDFE)$
- c. $CP = 80/17$
- d. $AB > CD$



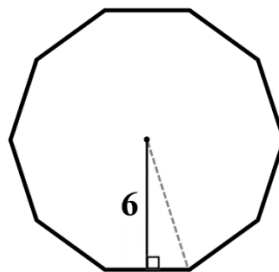
18. \overline{EQ} and \overline{FP} are altitudes of $\triangle EDF$, $EF = 17$, $QD = 6$, $DF = 9$. What is the value of FP ?

- a. 7
- b. 7.2
- c. 7.4
- d. 8



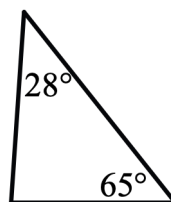
19. The apothem of a decagon is 6 units long. What is its perimeter?

- a. $100 / \tan 72^\circ$
- b. $120 / \tan 72^\circ$
- c. $140 / \tan 72^\circ$
- d. $240 / \tan 72^\circ$



20. Identify the triangle by sides and angles

- a. scalene, acute
- b. isosceles, obtuse
- c. scalene, obtuse
- d. equilateral, equiangular



21. Angle measures of a triangle are given, solve for x .

A triangle's \angle 's are given below:

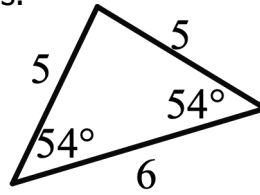
$$m\angle A = (x + 3)^\circ$$

$$m\angle B = (2x - 5)^\circ$$

$$m\angle C = (3x + 8)^\circ$$

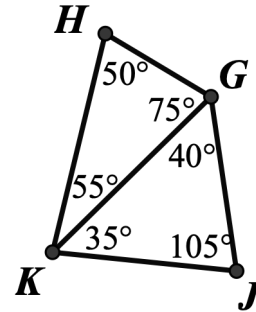
22. Classify the triangle by sides and angles.

- a. equilateral, right
- b. isosceles, acute
- c. isosceles, right
- d. isosceles, obtuse



23. Given the diagram below, Find the longest side.

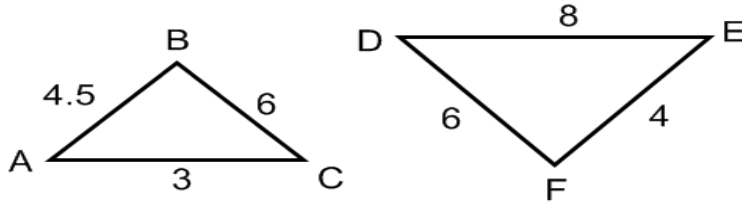
Note: The figure is not drawn to scale.



24. Which of the following sets of lengths could form the sides of a triangle? Choose **all** that apply.

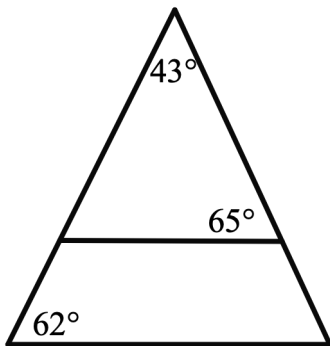
- a. 5, 9, 7
- b. 4, 8, 3
- c. 11, 11, 22
- d. 2, 5, 4
- e. 7, 9, 12
- f. 10, 8, 2

25. Determine whether the triangles are similar. If so, write a similarity statement.



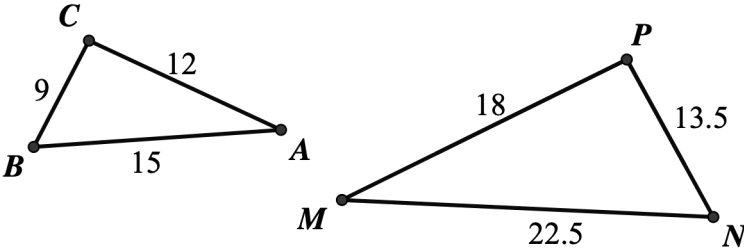
- a. Yes, $\triangle ABC \sim \triangle DEF$
- b. Yes, $\triangle ABC \sim \triangle DFE$
- c. Yes, $\triangle ABC \sim \triangle FDE$
- d. The triangles are not similar

26. Determine if the triangles are similar. If so, state the similarity postulate or theorem.



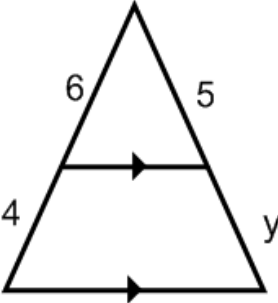
- a. Yes, by $AA\sim$
- b. Yes, by $SSS\sim$
- c. Yes, by $SAS\sim$
- d. The triangles are not similar

27. Determine if the triangles are similar. If so, state the similarity postulate or theorem.

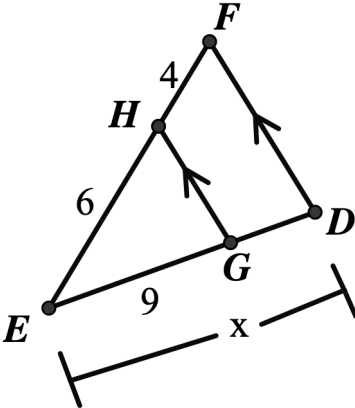


- a. Yes, by $AA\sim$
- b. Yes, by $SSS\sim$
- c. Yes, by $SAS\sim$
- d. The triangles are not similar

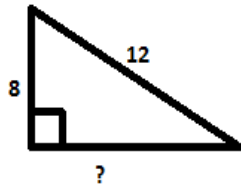
28. Solve for y .



29. Solve for x .

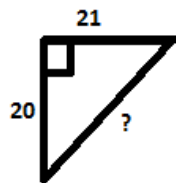


30. Find the length of the missing side of the triangle. Write the answer in simplest radical form.



- a. $4\sqrt{13}$ b. $4\sqrt{5}$ c. $\sqrt{80}$ d. 208

31. Find the length of the missing side of the triangle. Write the answer in simplest radical form.

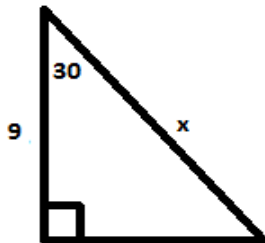


- a. 841 b. $\sqrt{41}$ c. $\sqrt{29}$ d. 29

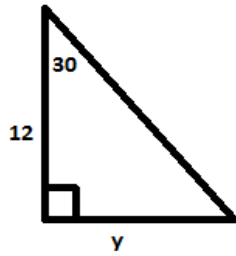
32. Tell whether the lengths 3, 14, and 10 form the sides of an acute, right, obtuse, or not a triangle.

- a. acute b. right c. obtuse d. not a triangle

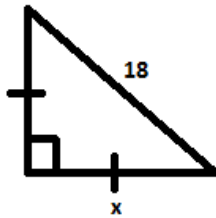
33. Find the value of x . Write the answer in simplest radical form.



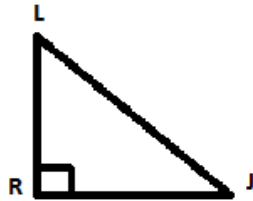
34. Find the value of y . Write the answer in simplest radical form.



35. Find the value of x . Write the answer in simplest radical form.

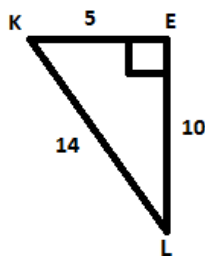


36. In the triangle below, what is the side adjacent to $\angle L$.



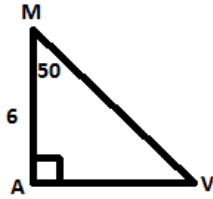
- a. \overline{RL} b. \overline{JL} c. \overline{LJ} d. \overline{JR}

37. What is the $\cos L$?

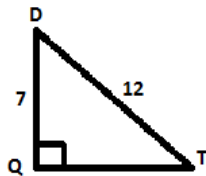


- a. $\frac{7}{5}$ b. $\frac{5}{14}$ c. $\frac{5}{7}$ d. $\frac{1}{2}$

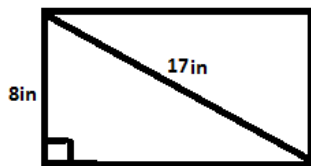
38. Find the length of \overline{AV} . Round to the nearest hundredth.



39. Find the $m\angle D$ and $m\angle T$. Round to the nearest hundredth.



40. Find the perimeter of the rectangle.



41. Name the polygon below and identify all of its qualities. Circle all that apply.

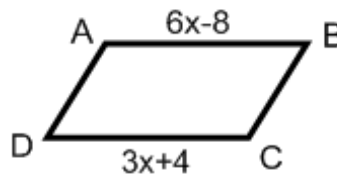
- a. nonagon
- b. hexagon
- c. heptagon
- d. concave
- e. convex
- f. equilateral
- g. equiangular
- h. regular
- i. not a polygon



42. What is the measure of each interior angle of a regular dodecagon?
- 144°
 - 150°
 - 154.29°
 - 157.5°

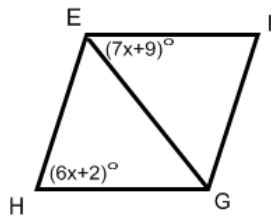
For #43-44, use the parallelogram below to answer the questions.

43. Find the value of x .
- 2
 - 8
 - 6
 - 4

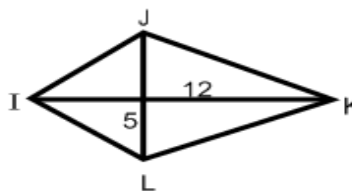


44. Find the length of \overline{AB} .
- 28
 - 16
 - 22
 - 14

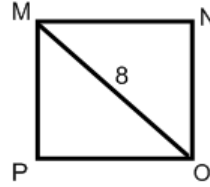
45. $EFGH$ is a rhombus. Find the $m\angle F$.
- 50°
 - 62°
 - 130°
 - 100°



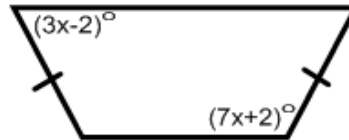
46. $IJKL$ is a kite. Find JK .
- 10
 - 12
 - 13
 - 5



47. $MNOP$ is a square. Find PO .
- $4\sqrt{2}$
 - $\frac{8\sqrt{3}}{3}$
 - 4
 - not enough information



48. The figure is a trapezoid. Find the value of x .
- 9
 - 18
 - 9.4
 - 17.6

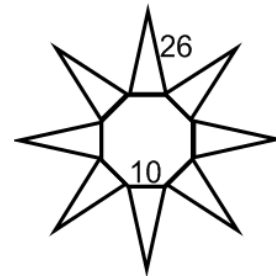


49. Which of the following statements is not true of a rectangle?
- All the angles are congruent.
 - The diagonals bisect each other.
 - The diagonals are perpendicular.
 - The diagonals are congruent.
50. Which of the following statement is true of a rhombus?
- All the angles are congruent.
 - The diagonals do not bisect each other.
 - The diagonals are perpendicular.
 - The diagonals are congruent.
51. What is the distance between $(-4, 6)$ & $(-7, 3)$? Circle all that apply.
- 3
 - $3\sqrt{2}$
 - 18
 - $\sqrt{18}$
 - $\sqrt{130}$
 - $4\sqrt{55}$

- 52.** What is the midpoint of $(6, -4)$ & $(3, -7)$?
- a.** $(1.5, -5.5)$
 - b.** $(1.5, -1.5)$
 - c.** $(4.5, -5.5)$
 - d.** $(4.5, -1.5)$
- 53.** The midpoint of a line segment is $(-5, -2)$. One endpoint has the coordinates $(-1, 6)$. What are the coordinates of the other endpoint?
- a.** $(-3, 2)$
 - b.** $(-6, 4)$
 - c.** $(3, 14)$
 - d.** $(-9, -10)$
- 54.** If one line passes through the points $(-4, 6)$ & $(-7, 3)$, what must be the slope of a line parallel to it?
- a.** 1
 - b.** -1
 - c.** $-\frac{9}{11}$
 - d.** $\frac{3}{11}$
- 55.** If one line passes through the points $(2, -5)$ & $(8, -5)$, what must be the slope of a line perpendicular to it?
- a.** -1
 - b.** 1
 - c.** 0
 - d.** Undefined
- 56.** If one line passes through the points $(-3, 8)$ & $(1, 9)$, and a perpendicular line passes through the point $(-2, 4)$, what is another point that would lie on the 2nd line. Circle all that apply.
- a.** $(-1, 0)$
 - b.** $(2, 5)$
 - c.** $(5, 2)$
 - d.** $(-6, 3)$
 - e.** $(8, -3)$
 - f.** $(-3, 8)$

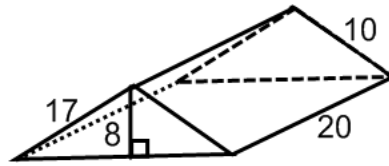
- 57.** If one line passes through the points $(-7, 2)$ & $(-7, -8)$, and a parallel line passes through the point $(1, -4)$, what is another point that would lie on the 2nd line. Circle all that apply.
- a. $(-2, -4)$
 - b. $(1, 3)$
 - c. $(8, 1)$
 - d. $(5, -4)$
 - e. $(1, -8)$
 - f. $(-6, -9)$
- 58.** What is the equation of the line parallel to $3x + 2y = 8$ and passes through the point $(4, -3)$?
- a. $y = -\frac{3}{2}x - \frac{1}{2}$
 - b. $y = \frac{2}{3}x - \frac{17}{3}$
 - c. $y = -\frac{3}{2}x + 3$
 - d. $y = \frac{2}{3}x + 6$
- 59.** What is the equation of the line perpendicular to $y - 4 = \frac{2}{5}(x - 6)$ and passes through the point $(-3, 2)$?
- a. $y - 2 = -\frac{5}{2}(x + 3)$
 - b. $y + 3 = -\frac{5}{2}(x - 2)$
 - c. $y - 2 = \frac{2}{5}(x + 3)$
 - d. $y + 3 = \frac{2}{5}(x - 2)$
- 60.** The center of a circle is at $(7, -2)$ and the point $(6, 3)$ is on the circle. Which is the equation for the circle.
- a. $(x - 7)^2 + (y + 2)^2 = \sqrt{26}$
 - b. $(x - 7)^2 + (y + 2)^2 = 26$
 - c. $(x + 7)^2 + (y - 2)^2 = \sqrt{26}$
 - d. $(x + 7)^2 + (y - 2)^2 = 26$
- 61.** A right cone has a diameter of 8 and a height of 7. Find the slant height.

- 62.** How many lateral faces does an oblique octagonal pyramid have?
a. 6
b. 7
c. 8
d. 9
- 63.** Find the number of vertices in the polyhedron if it contains 8 triangular faces and 18 square faces.
a. 24
b. 48
c. 72
d. 96
- 64.** Find the lateral area of the right regular pyramid represented by the net.



- 65.** The surface area of a box with length 6 cm and width 9 cm is 126 cm^2 . Find the height.
- 66.** Find the surface area of a right cone with radius 9 and slant height 15.
- 67.** A cross-section of a sphere, which is 24 units from the center of the sphere, has a circumference of 100π units. Find the surface area of the sphere.

- 68.** Find the volume of the right triangular prism.



- 69.** Find the volume of the cylinder with height 8 ft. and radius 6 ft.