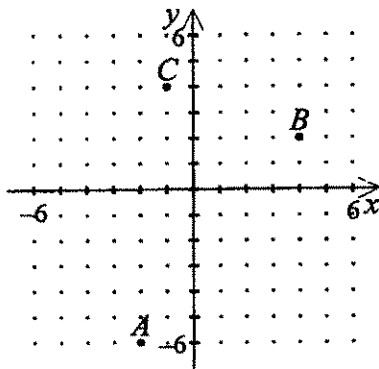
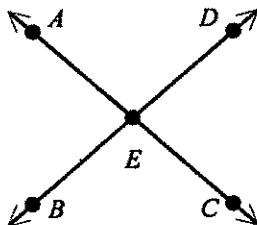


Mid Rev

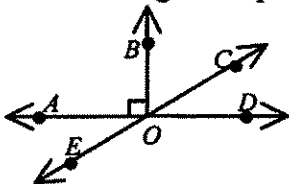
1. Draw a diagram illustrating the conjecture. Then, draw a counterexample diagram showing the conjecture is not true.
If $\angle RST$ and $\angle TSU$ are adjacent acute angles, then $\angle RSU$ is an acute angle.
2. Is the following an example of inductive or deductive reasoning? The sum of the angles of any triangle is 180° . You know two angles of a triangle are 30° and 70° . The third angle must be 80° .
3. Draw four points, A , B , C , and D , on a line so that \overrightarrow{CB} and \overrightarrow{CA} are opposite rays and \overrightarrow{CD} and \overrightarrow{CA} are the same ray.
4. Find the length of the segment from point C to the midpoint of \overline{AB} .



5. In the figure shown, $m\angle AED = 109^\circ$. True or False: $\angle AEB$ and $\angle AED$ are vertical angles and $m\angle AEB = 71^\circ$.

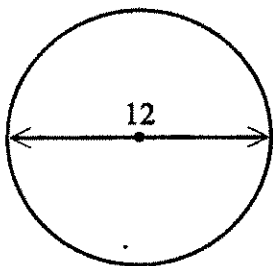


6. Name an angle complementary to $\angle COD$.



- [A] $\angle BOC$ [B] $\angle DOE$ [C] $\angle AOC$ or $\angle DOE$ [D] $\angle DOC$ or $\angle AOE$

7. Find the area and circumference of the circle. Use $\pi = 3.14$.

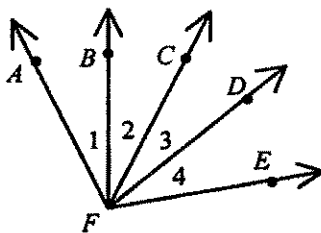


8. Write the converse of the true statement and decide whether the converse is true or false. If the converse is true, combine it with the original statement to form a true biconditional statement. If the converse is false, state a counterexample:
If a ray bisects an angle, then it divides the angle into two congruent angles.

9. Provide the reasons for all the statements in the following proof:

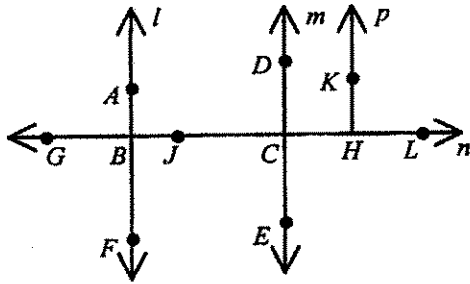
Given: $m\angle 1 = m\angle 3$

Prove: $m\angle AFC = m\angle DFB$

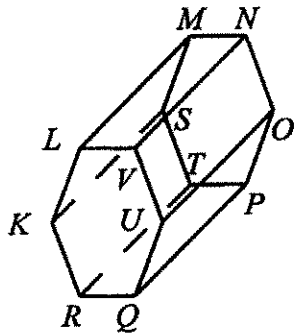


Statements	Reasons
$m\angle 1 = m\angle 3$	
$m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$	
$m\angle 1 + m\angle 2 = m\angle AFC$, $m\angle 3 + m\angle 2 = m\angle DFB$	
$m\angle AFC = m\angle DFB$	

10. Write a two-column proof:
 Given: $l \perp n$, $m \perp n$, $\angle ABJ \cong \angle KHL$
 Prove: $\angle DCH \cong \angle KHL$

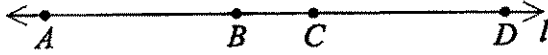


11. Name a pair of parallel planes.



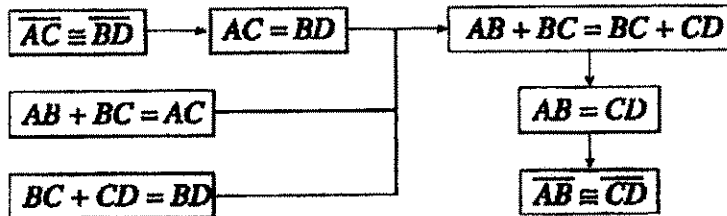
12. Define skew lines.

13. Write the reason for each step of the proof.

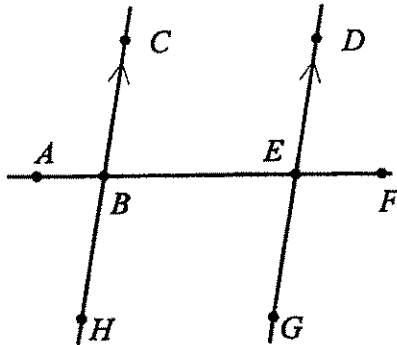


Given: $\overline{AC} \cong \overline{BD}$

Prove: $\overline{AB} \cong \overline{CD}$



14. In the figure, $m\angle ABC = 98^\circ$. Which statement is false?



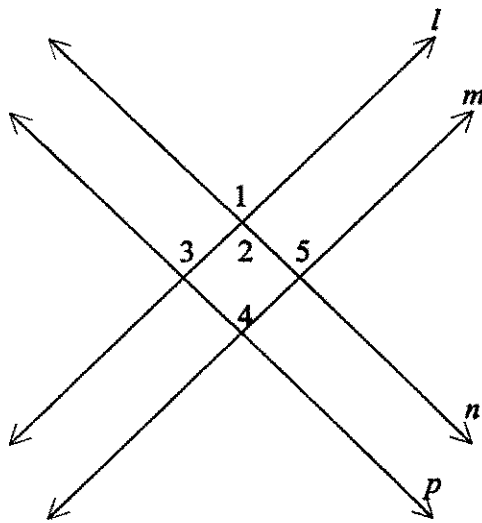
$$m\angle GEF = 98^\circ$$

$$m\angle DEF = 82^\circ$$

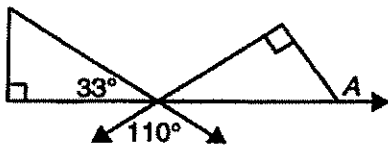
$\angle HBF$ and $\angle AED$ are alternate exterior angles.

$\angle ABH$ and $\angle AEG$ are corresponding angles.

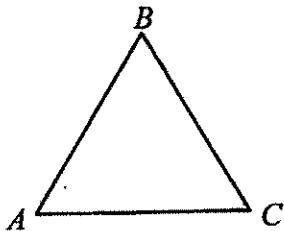
15. Use the figure and the given information to determine which lines must be parallel.
 Given: $\angle 1 \cong \angle 3$



16. A line parallel to $y = \frac{1}{2}x + 3$ and passing through $(0, 0)$ has the equation _____
- [A] $y = \frac{1}{2}x$ [B] $y = 2x$ [C] $y = \frac{1}{2}x - 3$ [D] $y = \frac{1}{2}x + 6$
17. Which best describes the relationship between the lines with equations $-4x + y = 0$ and $-4x + y = -4$?
- [A] neither parallel nor perpendicular [B] parallel
 [C] perpendicular [D] same line
18. Find the measure of exterior angle A .



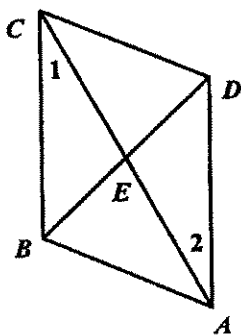
19. For the triangle below, $\triangle ABC \cong \triangle CAB$. What type of triangle must $\triangle ABC$ be? Explain



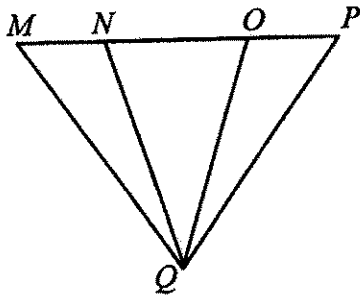
20. Sketch the following, if possible. If not possible, state why.
- A. Right scalene triangle
 - B. Two obtuse isosceles triangles that are not congruent
 - C. A triangle with an exterior angle of 30°
 - D. A triangle with two acute angles and one obtuse angle
21. Given: $\angle B \cong \angle E$ and $\angle C \cong \angle F$. What other piece of information is needed to show $\triangle ABC \cong \triangle DEF$ by ASA Congruence Postulate?

- [A] $\overline{BC} \cong \overline{EF}$ [B] $\angle A \cong \angle D$ [C] $\overline{EF} \cong \overline{FE}$ [D] $\angle B = \angle F$

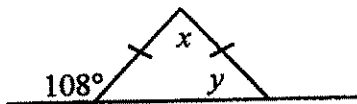
22. Given: $\overline{BC} \cong \overline{DA}$, $\angle 1 \cong \angle 2$
Prove: $\triangle BEA \cong \triangle DEC$



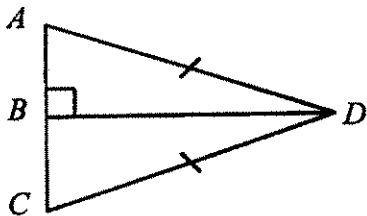
23. Given: $\overline{QO} \cong \overline{QN}$; $\overline{NM} \cong \overline{OP}$
 Prove: $\triangle QMP$ is isosceles



24. Find the values of x and y .

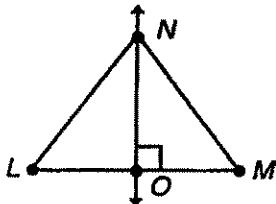


- [A] $x = 36^\circ$; $y = 108^\circ$ [B] $x = 72^\circ$; $y = 108^\circ$
 [C] $x = 36^\circ$; $y = 72^\circ$ [D] $x = 72^\circ$; $y = 52^\circ$
25. $\triangle ABD \cong \triangle CBD$. Name the theorem or postulate that justifies the congruence.



- [A] ASA [B] HL [C] AAS [D] SAS
26. Place a square on a coordinate graph and label each vertex with variables. Prove that the diagonals of a square are congruent and perpendicular to each other.

27. \overleftrightarrow{NO} is the perpendicular bisector of \overline{LM} . If $OM = 4$ and $LN = 6$, then $LO = \underline{\hspace{2cm}}$ and $MN = \underline{\hspace{2cm}}$. Explain your solutions.



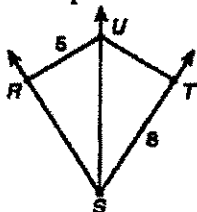
28. The perpendicular bisectors of a triangle all pass through what point?

29. \overleftrightarrow{SU} is the bisector of $\angle RST$.

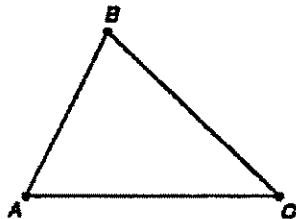
$$\overline{UR} \perp \overline{RS}$$

$$\overline{UT} \perp \overline{ST}$$

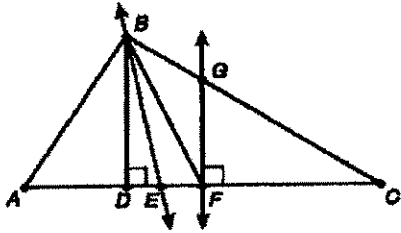
Complete with a number: $RS = \underline{\hspace{2cm}}$, $UT = \underline{\hspace{2cm}}$.



30. Use a straightedge and compass to construct the incenter of the triangle shown and draw the inscribed circle.

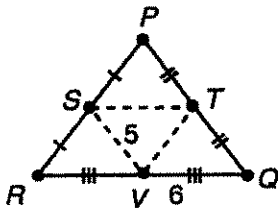


31. Refer to the figure below.



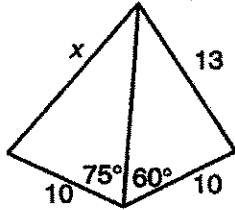
Given: $\overline{AF} \cong \overline{FC}$, $\angle ABE \cong \angle EBC$
Which segment is a median of $\triangle ABC$?

32. The medians of a triangle are concurrent. Their common point is the _____.
[A] incenter [B] orthocenter [C] circumcenter [D] centroid
33. If \overline{QR} is an altitude of $\triangle PQR$, what type of triangle is $\triangle PQR$?
34. For the triangle shown, $VS = 5$ and $VQ = 6$. Then $PQ =$ _____.



- [A] 10 [B] 5 [C] 12 [D] 11
35. Identify the largest angle of $\triangle ABC$.
-
36. Two sides of a triangle have sides 14 and 28. The length of the third side must be greater than _____ and less than _____.
[A] 14, 42 [B] 14, 28 [C] 13, 43 [D] 13, 29

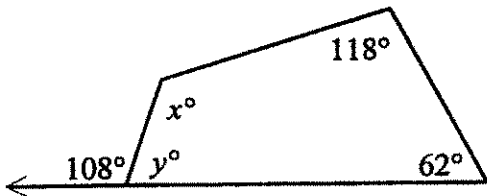
37. Refer to the figure. Choose the correct statement.



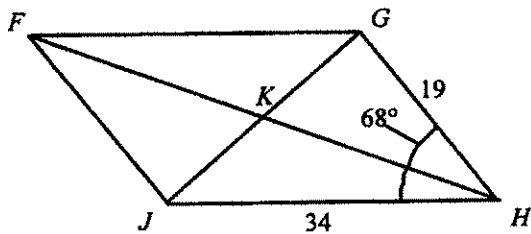
- [A] $x < 10$ [B] $10 < x < 13$ [C] $x > 13$ [D] $x = 13$

38. How many diagonals does a convex pentagon have?

39. Find x and y .



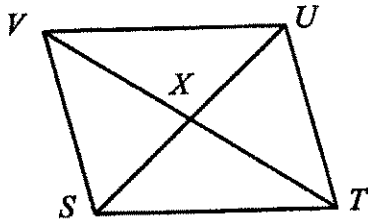
40. Use the figure below.



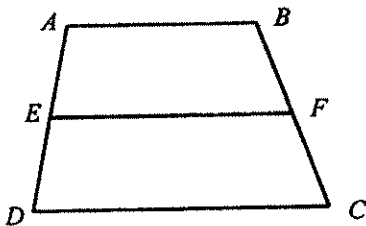
Given: $FGHJ$ is a parallelogram, $m\angle JHG = 68^\circ$, $JH = 34$, $GH = 19$

- A. Find $m\angle FJH$.
- B. Find JF .
- C. Find $m\angle GFJ$.
- D. Find FG .

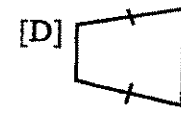
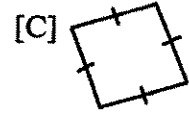
41. Given: $\overline{SV} \cong \overline{TU}$ and $\overline{SV} \parallel \overline{TU}$
 Prove: $VX = XT$



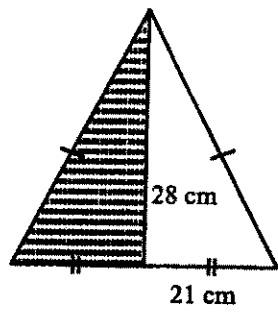
42. If the diagonals of a parallelogram are equal in length, then the parallelogram is also what type of figure?
43. Choose the statement that is NOT ALWAYS true. For a rhombus _____.
- [A] all four sides are congruent [B] each diagonal bisects a pair of opposite angles
 [C] the diagonals are congruent [D] the diagonals are perpendicular
44. Isosceles trapezoid $ABCD$ has legs \overline{AB} and \overline{CD} , and base \overline{BC} . If $AB = 8y + 5$, $BC = 4y + 7$, and $CD = 10y + 4$. Find the value of y .
45. In what type of trapezoid are the base angles congruent?
46. Given: Trapezoid $ABCD$ with midsegment \overline{EF} . If $EF = 27$ and $DC = 33$, find the length of \overline{AB} .



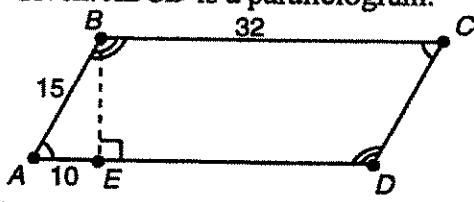
47. Choose the figure below which satisfies the definition of a kite.



48. Find the area of the shaded triangle.



49. Given: $ABCD$ is a parallelogram.



- A. Find the height, BE .
- B. Find the area of parallelogram $ABCD$.

50. Find the area of the region shown by dividing it into two trapezoids.

