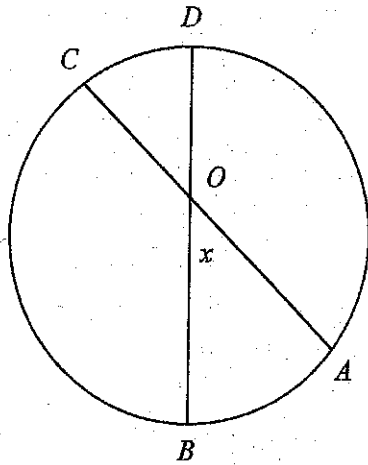
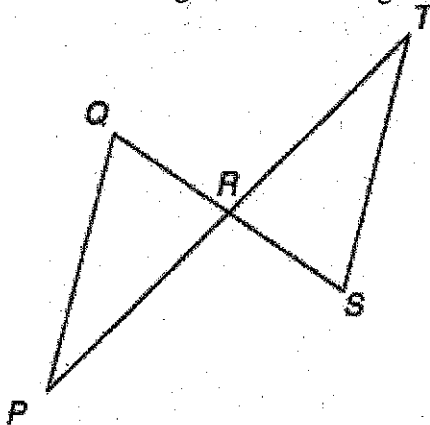


1. What is the value of x for $m\widehat{AB} = 45$ and $m\widehat{CD} = 42$?



- a. 3 b. 43.5 c. 66 d. 87

2. Rita is creating an abstract design that includes the figure below.



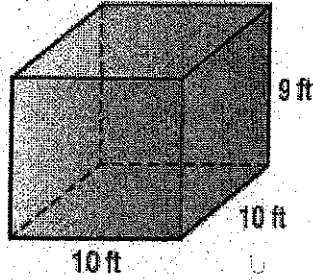
She knows that $\angle PQR \cong \angle TSR$. What additional information would she need to prove that $\triangle PQR \cong \triangle TSR$ using ASA?

- a. $\angle QPR \cong \angle SRT$ c. $\overline{PR} \cong \overline{TR}$
 b. $\overline{QP} \cong \overline{ST}$ d. $\overline{QR} \cong \overline{SR}$

Name: _____

ID: A

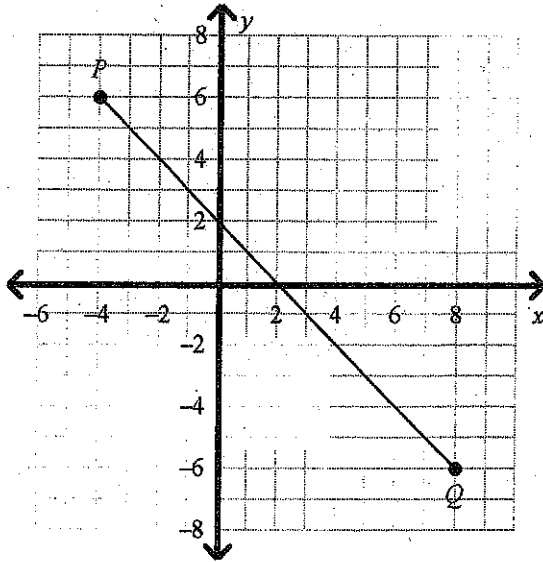
3. Rebecca is loading medical supply boxes into a crate. Each supply box is 1.5 feet tall, 1 foot wide, and 2 feet deep. The crate is 9 feet high, 10 feet wide, and 10 feet deep.



What is the maximum number of supply boxes can she pack in this crate?

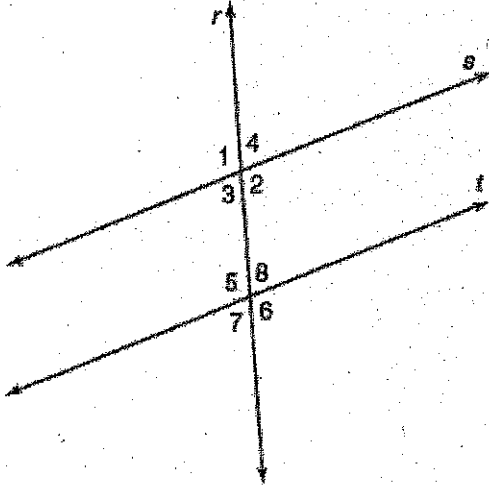
- a. 200 b. 300 c. 450 d. 600

4. What is the midpoint of \overline{PQ} ?



- a. (2, 0) b. (2, 1) c. (1, 1) d. (1, 0)

5. Lines s and t are parallel and r is a transversal.



Which angles are congruent to $\angle 4$?

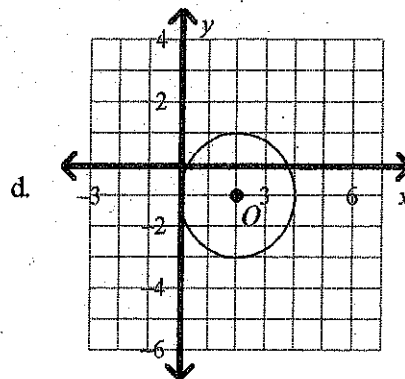
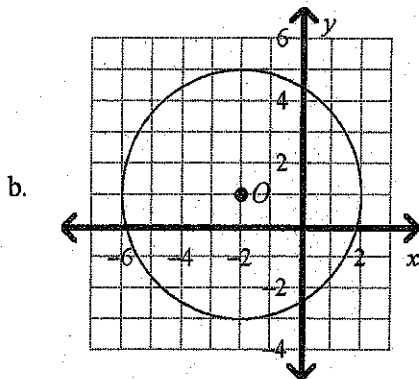
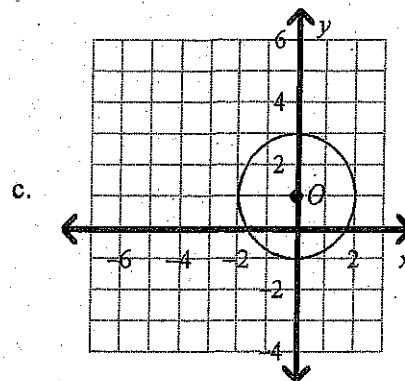
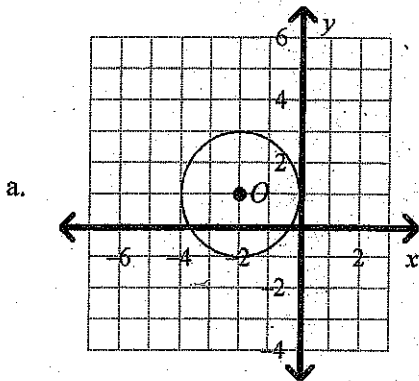
a. $\angle 2, \angle 5, \angle 8$

c. $\angle 3, \angle 5, \angle 7$

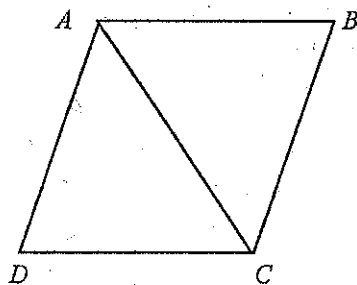
b. $\angle 2, \angle 6, \angle 8$

d. $\angle 3, \angle 7, \angle 8$

6. A manufacturer is designing a two-wheeled cart that can maneuver through tight spaces. On one test model, the wheel placement (center) and radius is modeled by the equation $(x + 2)^2 + (y - 1)^2 = 4$. What is the graph that shows the position and radius of the wheels?



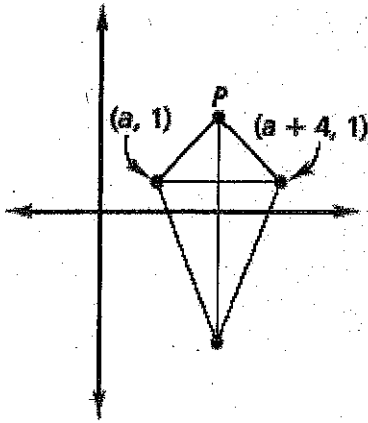
7. $ABCD$ is a rhombus. How do you complete the explanation that states why $\triangle ABC \cong \triangle CDA$?



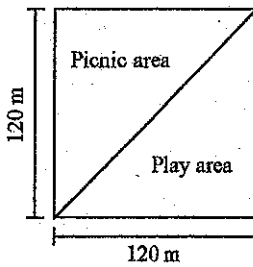
$\overline{AB} \cong \overline{CD}$ and $\overline{BC} \cong \overline{DA}$ by the definition of rhombus. $\overline{AC} \cong \overline{AC}$ by the Reflexive Property of Congruence, so $\triangle ABC \cong \triangle CDA$ by _____.

- | | |
|--------|--------|
| a. ASA | c. SAS |
| b. AAS | d. SSS |

8. The figure shown is a kite. What is the x -coordinate of point P ?



- a. $\frac{a}{2} + 4$ c. $a + 2$
b. $\frac{a + 4}{2}$ d. $2a + 4$
9. A community is building a square park with sides that measure 120 meters. To separate the picnic area from the play area, the park is split by a diagonal line from opposite corners. Determine the approximate length of the diagonal line that splits the square. If necessary, round your answer to the nearest meter.

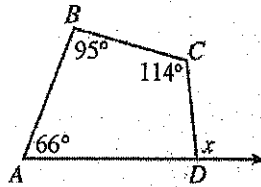


- a. 28,800 meters
b. 170 meters
c. 240 meters
d. 120 meters

Name: _____

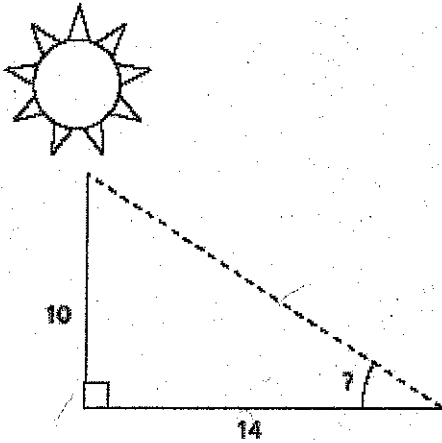
ID: A

10. Three angles of quadrilateral $ABCD$ have measures 66° , 95° , and 114° . What is the value of x ?



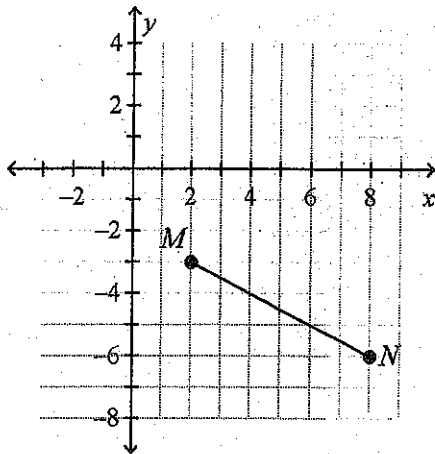
- a. 85° b. 95° c. 161° d. 275°

11. At a certain time, a vertical pole 10 feet tall casts a 14-foot shadow. What is the angle of elevation of the sun to the nearest degree?



- a. 36°
b. 44°
c. 46°
d. 54°

____ 12. To the nearest tenth, what is the length, in units, of \overline{MN} ?

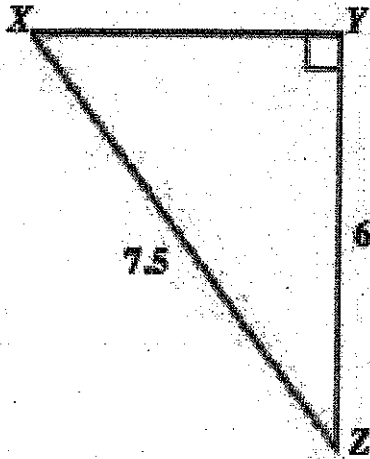


- a. 6.0 b. 6.7 c. 9.0 d. 9.1

____ 13. Michael used a compass and a ruler to construct two parallel lines and a transversal. Which of the following statements is a conjecture that Michael can make about the angles formed by the parallel lines and the transversal.

- a. Pairs of same side interior angles are supplementary.
b. Pairs of alternate interior angles are supplementary.
c. Pairs of alternate exterior angles are supplementary.
d. Pairs of corresponding angles are supplementary.

14. In $\triangle XYZ$, what is the cosine ratio of $\angle X$?

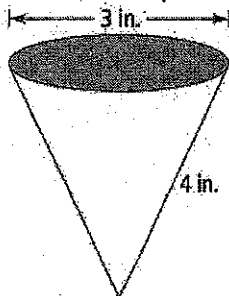


- a. $\frac{9}{15}$
- b. $\frac{9}{12}$
- c. $\frac{12}{15}$
- d. $\frac{15}{12}$

15. If $\triangle DNP \cong \triangle HKF$, which of the following is NOT true?

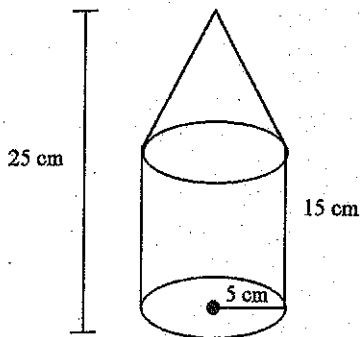
- a. $\overline{NP} \cong \overline{KF}$
- b. $\overline{DP} \cong \overline{HF}$
- c. $\angle D \cong \angle H$
- d. $\angle P \cong \angle K$

16. To the nearest square inch, how much paper is needed to make the drinking cup below?

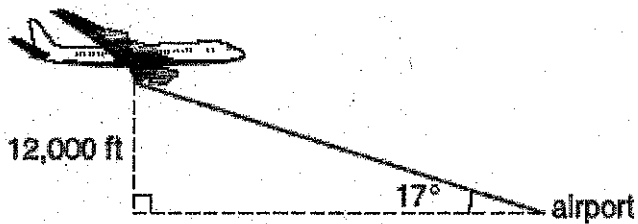


- a. 38 square inches
- b. 19 square inches
- c. 7 square inches
- d. 24 square inches

17. Find the volume of the figure below. Round to the nearest square centimeter.



- a. 576 cm^3 b. 785 cm^3 c. 1440 cm^3 d. 1963 cm^3
18. A plane is flying at an altitude of 12,000 feet and is preparing to land at a nearby airport. The angle from the airport to the plane is 17° .

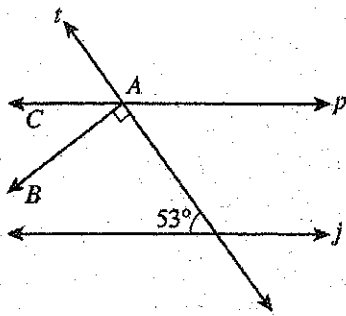


Note: Figure not drawn to scale.

To the nearest tenth of a foot, how far is the airport from the plane?

- a. 3,668.8 feet b. 12,548.3 feet c. 39,250.2 feet d. 41,043.6 feet
19. Quadrilateral $RSTU$ has vertices $R(-6, -3)$, $S(3, 3)$, and $T(4, -1)$. What are the coordinates of vertex U if $RSTU$ is a parallelogram?
- a. $(-5, -6)$ c. $(-6, -7)$
 b. $(-5, -7)$ d. $(-6, -8)$

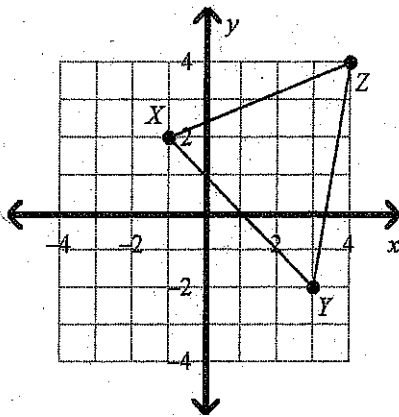
20. In this drawing, line p is parallel to line j and line t is perpendicular to \overline{AB} .



What is the measure of $\angle BAC$?

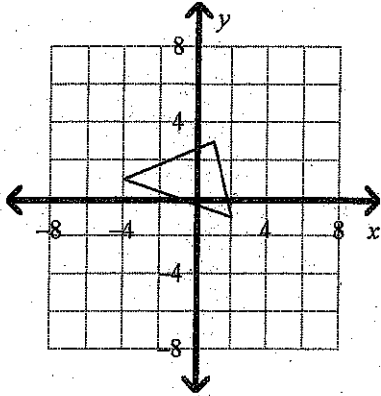
- a. 37°
- b. 53°
- c. 90°
- d. 127°

21. If triangle XYZ is rotated 90° clockwise about the origin to form triangle $X'Y'Z'$, what are the coordinates of Y' ?

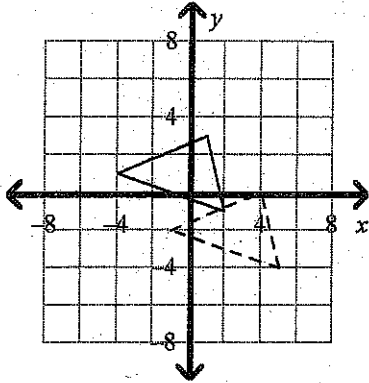


- a. $(2, -3)$
- b. $(-2, 3)$
- c. $(-2, -3)$
- d. $(-3, -2)$

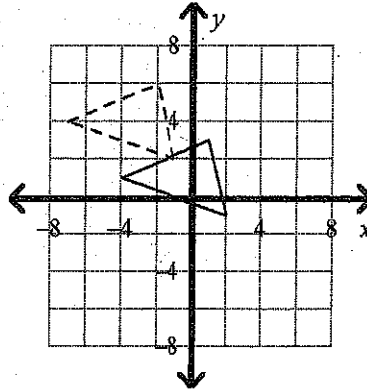
22. What is the translation image of the triangle shown after a translation with the rule $(x, y) \rightarrow (x - 3, y + 3)$?



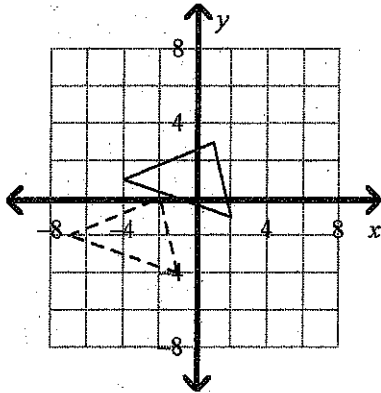
a.



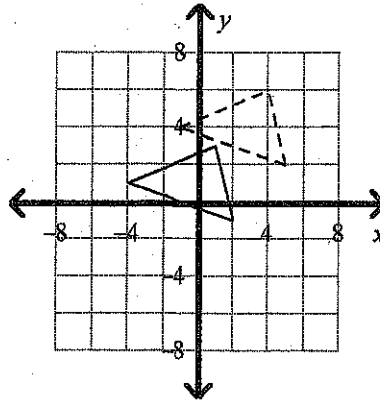
c.



b.



d.



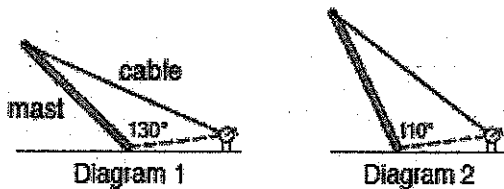
23. A triangle is dilated by a scale factor of $\frac{1}{3}$ to produce a new triangle. Which of the following best describes the relationship between the perimeter of the original triangle compared to the perimeter of the new triangle?

- a. The perimeter of the new triangle is $\frac{1}{3}$ that of the original triangle.
- b. The perimeter of the new triangle is 3 times that of the original triangle.
- c. The perimeter of the new triangle is $\frac{1}{9}$ that of the original triangle.
- d. The perimeter of the new triangle is 9 times that of the original triangle.

24. What is the equation of a circle that has center $(-6, 2)$ and radius $\sqrt{106}$?

- a. $(x - 6)^2 + (y + 2)^2 = \sqrt{106}$
- b. $(x + 6)^2 + (y - 2)^2 = \sqrt{106}$
- c. $(x - 6)^2 + (y + 2)^2 = 106$
- d. $(x + 6)^2 + (y - 2)^2 = 106$

25. Warren and his dad are preparing to go sailing for the first time this year. The two diagrams show the boat's mast in different positions as they use a winch to raise it. Notice that the length of the mast and the distance from the bottom of the mast to the winch are the same in each diagram. Which of the following best describes the relationship of the cable from the top of the mast in both Diagrams 1 and 2?



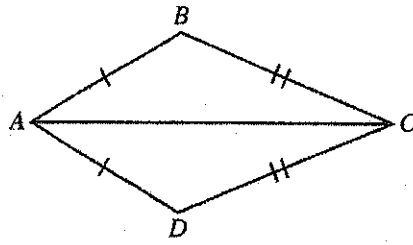
- a. The cables are of equal length in both diagrams.
- b. The cable is longer in Diagram 1 than it is in Diagram 2.
- c. The cable is longer in Diagram 2 than it is in Diagram 1.
- d. The length of the cables cannot be determined in either Diagram 1 or 2.

26. You are reducing a map of dimensions 2 feet by 3 feet to fit to a piece of paper 8 inches by 10 inches. What are the dimensions of the largest possible map that can fit on the page?

- a. $6\frac{2}{3}$ inches by 10 inches
- b. $5\frac{1}{3}$ inches by 10 inches
- c. 8 inches by $6\frac{2}{3}$ inches
- d. 8 inches by 10 inches

27. In the proof below, what is the missing reason?

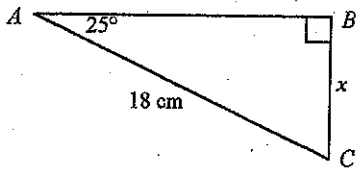
Given: $ABCD$ is a kite
 Prove: $\angle B \cong \angle D$



Statement	Reason
1. $\overline{AB} \cong \overline{AD}$ and $\overline{BC} \cong \overline{CD}$	1. Definition of kite
2. $\overline{AC} \cong \overline{AC}$	2. Reflexive Property of equality
3. $\triangle ABC \cong \triangle ADC$	3. SSS
4. $\angle B \cong \angle D$	4. ?

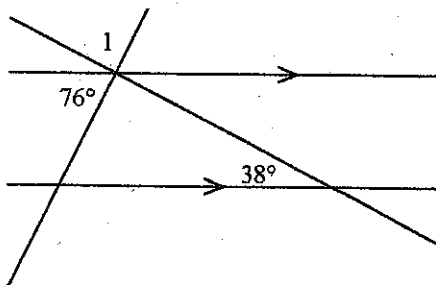
- a. SAS
- b. CPCTC
- c. SSS
- d. AAS

28. What is the approximate value of x in the diagram below?



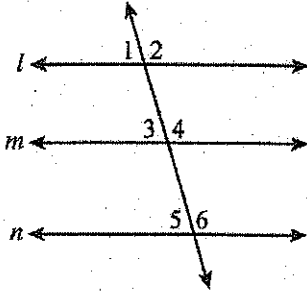
- a. 7.6 centimeters
- b. 8.4 centimeters
- c. 16.3 centimeters
- d. 19.9 centimeters

29. What is $m\angle 1$?



- a. 114°
- b. 104°
- c. 76°
- d. 66°

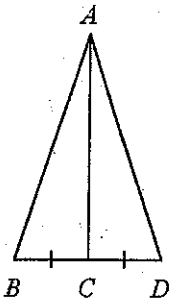
30. Carlos constructed 3 parallel lines as part of an art project. He also drew a line passing through each of the parallel lines. Some of the angles formed by the intersection of line t and lines l , m , and n are numbered in the diagram below.



Which conjecture can Carlos make about the angles formed by line t and lines l , m , and n ?

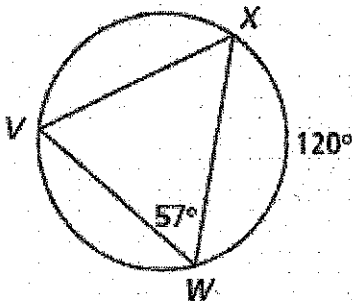
- Angles 1, 2, and 3 are congruent.
- Angles 1, 3, and 5 are congruent.
- Angles 2 and 4 are supplementary.
- Angles 1 and 5 are supplementary.

31. What other information is needed in order to prove the triangles congruent using the SAS Congruence Postulate?



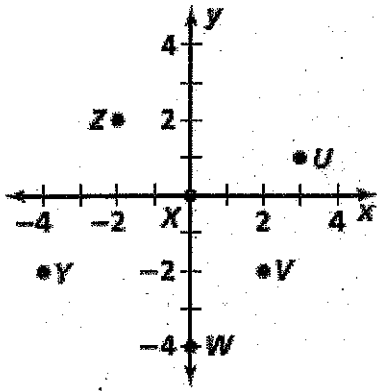
- $\angle BAC \cong \angle DAC$
- $\overline{AC} \perp \overline{BD}$
- $\overline{AB} \parallel \overline{AD}$
- $\overline{AC} \cong \overline{BD}$

32. What is the measure of $\angle VXW$?



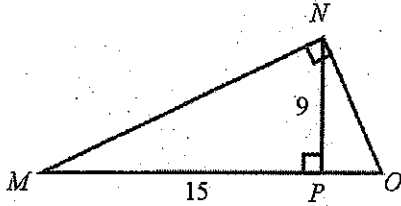
- 120°
- 63°
- 60°
- 57°

33. What is the y-coordinate of the midpoint of \overline{WU} ?



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

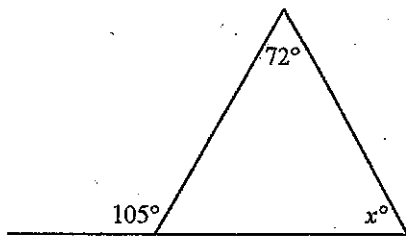
34. In the figure below, \overline{NP} is the altitude drawn to the hypotenuse of $\triangle MNO$.



If $NP = 9$ and $MP = 15$, what is the length of \overline{OP} ?

- a. 7.2
b. 6.2
c. 5.4
d. 4.8

35. What is the value of x ?



- a. 33 b. 75 c. 147 d. 162