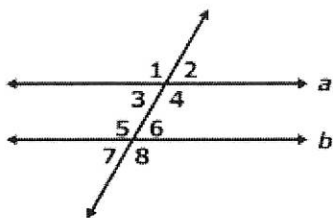


1. What is the definition of an angle?

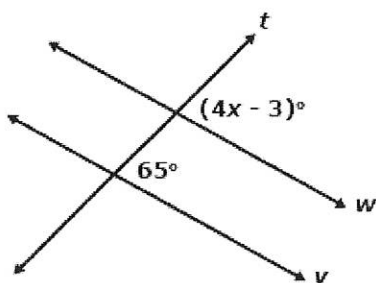
- A. a part of a line starting at a particular point and extending infinitely in one direction
- B. the set of all points that are a fixed distance from a given point
- C. all points between and including two given points
- D. two rays sharing a common endpoint

2. Which of the following is **NOT** true when line a is parallel to line b ?



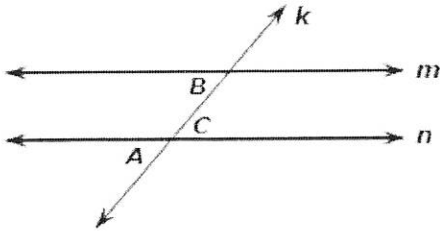
- A. $m\angle 1 = m\angle 5$
- B. $m\angle 2 = m\angle 6$
- C. $m\angle 1 + m\angle 5 = 180^\circ$
- D. $m\angle 4 = m\angle 8$

3. Find the value of x when lines w and v are parallel:



- A. 15.5
- B. 17
- C. 23.25
- D. 29.5

4. The diagram below shows two parallel lines, m and n , cut by a transversal, k . Angles A , B , and C are shown in the diagram.



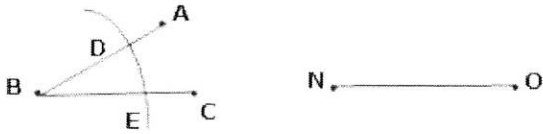
A student writes a proof to show that the corresponding angles, A and B , are congruent. The student's proof is shown below.

Statements	Reasons
1. $m \parallel n$	Given
2. $\angle A \cong \angle C$	Vertical angles are congruent
3. $\angle B \cong \angle C$	Vertical angles are congruent
4. $\angle A \cong \angle B$	Transitive Property

Which option describes the validity of Reasons 2 and 3?

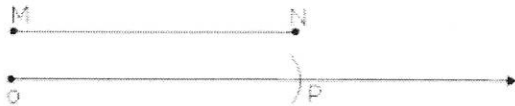
- A. Both Reason 2 and Reason 3 are correct as shown in the table.
- B. Reason 2 is correct, but Reason 3 should be "Alternate interior angles are congruent".
- C. Reason 2 should be "Alternate interior angles are congruent," but Reason 3 is correct.
- D. Both Reason 2 and Reason 3 should be "Alternate interior angles are congruent".

5. What is the next step in constructing an angle ($\angle MNO$) congruent to the given angle ($\angle ABC$) with a straightedge and a compass?



1. Draw a ray. Label it \overline{NO}
2. Using B as the center and any radius, draw an arc which intersects \overline{BA} and \overline{BC} . Label the intersection points D and E .
3. ?
 - A. Draw a ray \overline{NM} .
 - B. Using N as the center and any radius, draw an arc which intersects \overline{NM} and \overline{NO} . Label the interception points P and Q .
 - C. With a straightedge, connect points D and E .
 - D. Using N as the center and the same radius as before, draw an arc that intersects \overline{NO} . Label the arc PQ where Q intersects \overline{NO} .

6. This diagram represents what kind of construction?



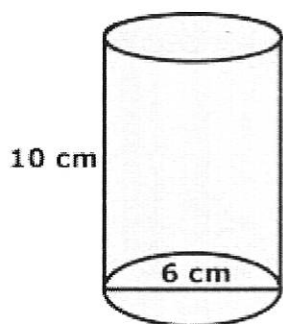
- A. Parallel Lines
- B. Perpendicular Lines
- C. Congruent Segments
- D. Parallel Segments

7. A line has a slope of 4. What is the slope of any line perpendicular to this line?
- A. - 4
 - B. $-\frac{1}{4}$
 - C. $\frac{1}{4}$
 - D. undefined
8. Two lines are perpendicular. The slope of the first line is $\frac{3}{5}$. What is the slope of the second line?
- A. $\frac{5}{3}$
 - B. $\frac{3}{5}$
 - C. $-\frac{3}{5}$
 - D. $-\frac{5}{3}$
9. Line r contains the points $(1, 7)$ and $(-3, -5)$. Line t contains the points $(-6, -20)$ and $(0, -2)$. Which statement is **TRUE** about lines r and t ?
- A. Their slopes are both negative
 - B. Their slopes are opposite–reciprocals.
 - C. Their slopes are opposites but not reciprocals.
 - D. Their slopes are the same.

10. What is the slope of a line parallel to the line $y = -\frac{3}{2}x + 3$?

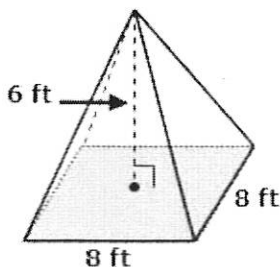
- A. $-\frac{3}{2}$
- B. $-\frac{2}{3}$
- C. $\frac{2}{3}$
- D. $\frac{3}{2}$

11. Calculate the volume of the cylinder:



- A. $9\pi \text{ cm}^2$
- B. $36\pi \text{ cm}^2$
- C. $360\pi \text{ cm}^3$
- D. $90\pi \text{ cm}^3$

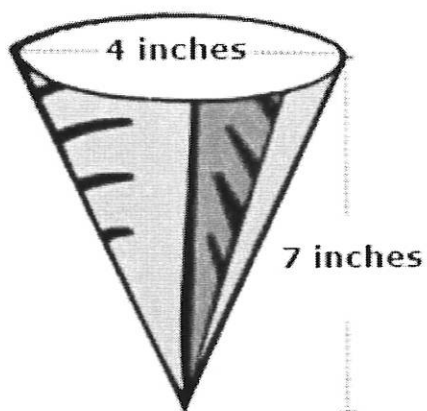
12. Calculate the volume of a square-based pyramid with an altitude height of 6 ft and base edges of 8 ft.



- A. 64 ft^3
- B. 128 ft^3
- C. 192 ft^3
- D. 384 ft^3

13. A manufacturer is working on a new type of bowling ball. The bowling ball will have a weighted sphere inside of it. If the bowling ball's diameter is 8.6 inches and the diameter of the weight is 5.66 inches, what is the *best* estimate of the volume of material the manufacturer will need in order to create *just* the bowling ball?
- A. 94.89 cubic inches
 - B. 237.98 cubic inches
 - C. 332.87 cubic inches
 - D. 427.76 cubic inches

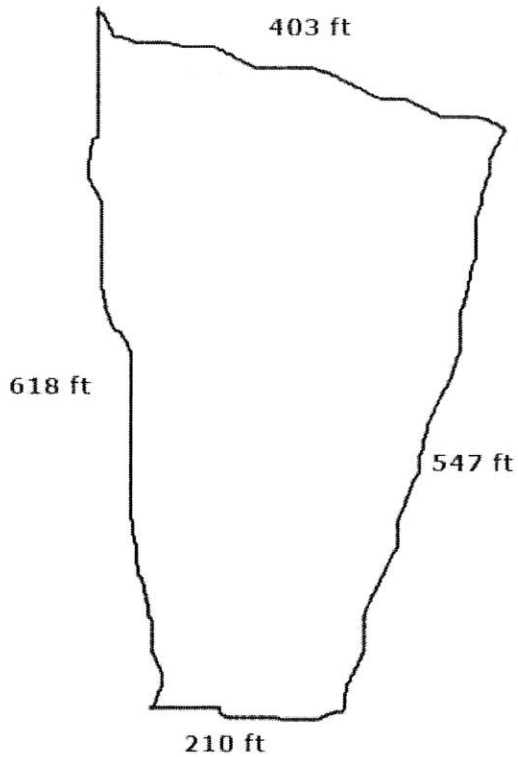
14. Mrs. McDonnell is making 25 paper cones to fill with popcorn for her daughter's birthday party.



Find the volume of one paper cone if the diameter is 4 inches and the height is 7 inches. Round your answer to the nearest cubic inch.

- A. 29 in^3
- B. 59 in^3
- C. 88 in^3
- D. 117 in^3

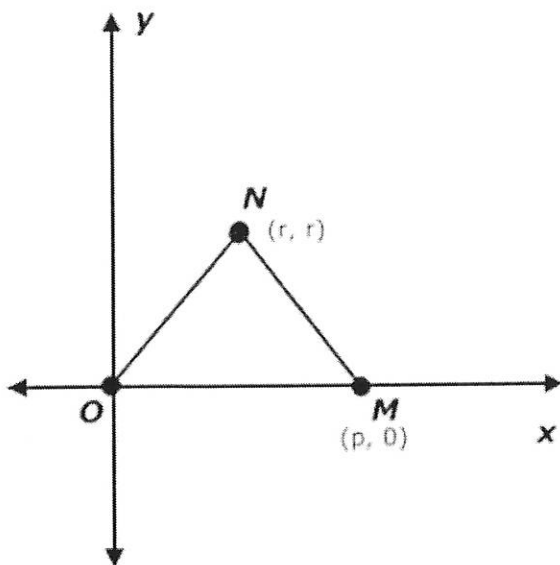
15. A farmer is planting seeds on an irregular piece of land. Seeds come in bags that cover 10,000 square feet of land.



What is the **best** estimate of the number of bags of seed that the farmer should purchase to plant seeds on the entire piece of land?

- A. 12 bags
- B. 18 bags
- C. 25 bags
- D. 36 bags

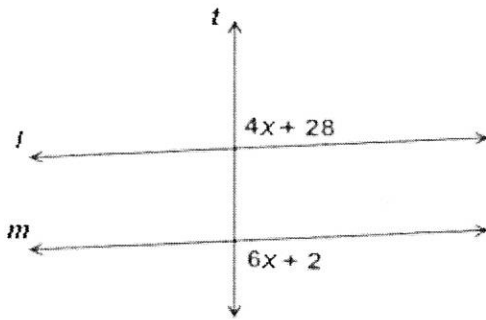
16. The diagram shows $\triangle MNO$.



Which of the following must be true if $\triangle MNO$ is isosceles with base \overline{OM} ?

- A. $p = \frac{r}{2}$
 - B. $p = r$
 - C. $p = r\sqrt{2}$
 - D. $p = 2r$
17. What type of quadrilateral has the vertices $A(3, 6)$, $B(3, 3)$, $C(6, 3)$, and $D(6, 6)$?
- A. square
 - B. non-square parallelogram
 - C. non-square rhombus
 - D. non-special parallelogram

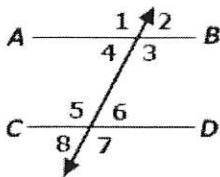
18. In the accompanying diagram, parallel lines l and m are cut by transversal t .



What is the value of x ?

- A. $15\frac{1}{2}$
 B. 15
 C. $14\frac{2}{3}$
 D. 13

- 19.



Mark is asked to prove that $\angle 4 \cong \angle 6$, given that $\overline{AB} \parallel \overline{CD}$, as shown in the diagram above. Mark's proof is shown in the table below.

Step in Proof	Statements
1	$\angle 4 \cong \angle 8$ therefore $m\angle 4 = m\angle 8$
2	$\angle 8 \cong \angle 6$ therefore $m\angle 8 = m\angle 6$
3	If $m\angle 4 = m\angle 8$ and $m\angle 8 = m\angle 6$ then $m\angle 4 = m\angle 6$
4	$\angle 4 \cong \angle 6$

Which reason supports the statement Mark made in step 2 of his work?

- A. Vertical angles are congruent.
 B. Supplementary angles are congruent.
 C. Corresponding angles formed by parallel lines are congruent.
 D. Alternate interior angles formed by parallel lines are congruent.

