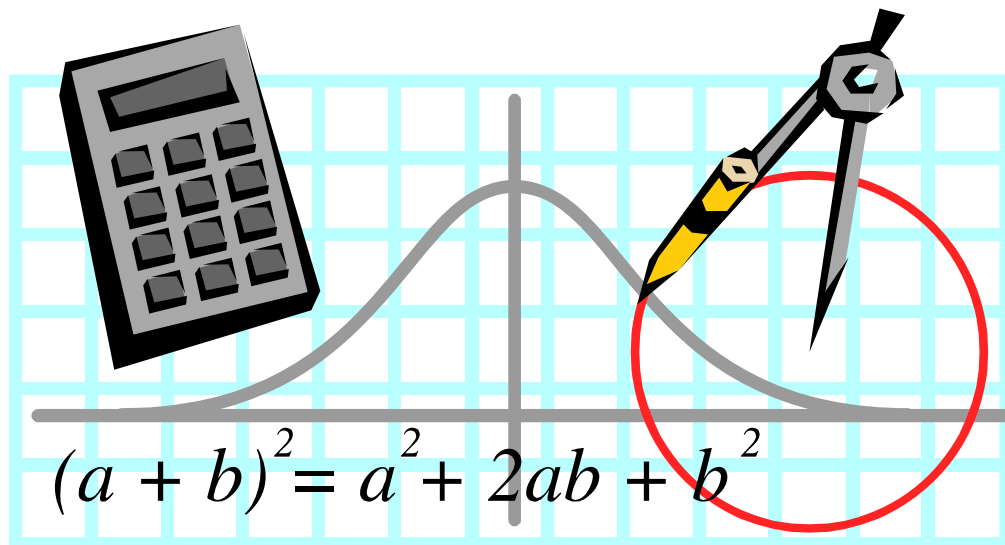


# GEOMETRY PLACEMENT TEST



**Division of Bilingual Education and World Languages  
Miami-Dade County Public Schools**

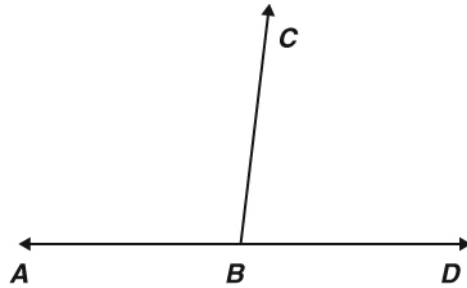
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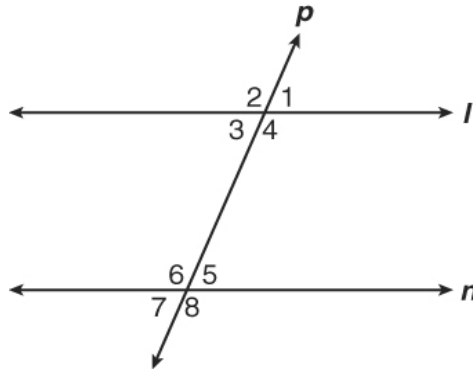
I.D.# \_\_\_\_\_

1. Kym drew the diagram below and stated that  $\angle ABC$  and  $\angle CBD$  form a linear pair of angles. Which statement is the correct conclusion based upon Kym's statement?



- A.  $\angle ABC$  and  $\angle CBD$  are congruent.
- B.  $\angle ABC$  and  $\angle CBD$  are supplementary.
- C.  $\angle ABC$  and  $\angle CBD$  are complementary.
- D.  $\angle ABC$  and  $\angle CBD$  are both right angles.

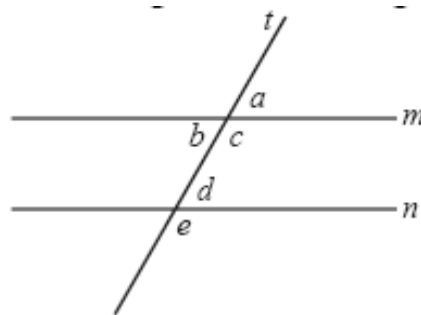
2. In the figure below, line  $l$  and line  $n$  are parallel lines intersected by line  $p$ .



Which of these pairs of angles MUST be congruent?

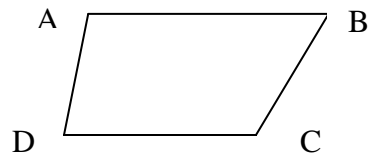
- A.  $\angle 1$  and  $\angle 6$
- B.  $\angle 2$  and  $\angle 8$
- C.  $\angle 3$  and  $\angle 4$
- D.  $\angle 4$  and  $\angle 7$

3. In the figure below, line  $m$  is parallel to line  $n$ , and line  $t$  is a transversal crossing both  $m$  and  $n$ . Which of the following list has 3 angles that are equal in measure?



- A.  $\angle a, \angle b, \angle d$
- B.  $\angle a, \angle c, \angle d$
- C.  $\angle a, \angle c, \angle e$
- D.  $\angle b, \angle c, \angle d$

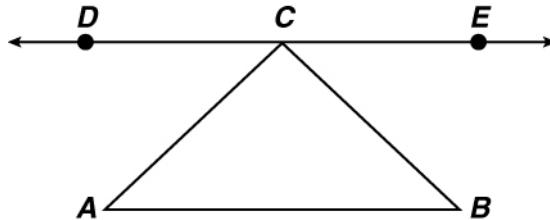
4. In the figure below,  $\overline{AB}$  is parallel to  $\overline{DC}$ .



Which of the following statements about the figure must be true?

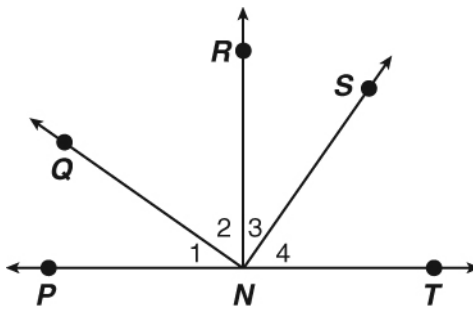
- A.  $\angle DAB + \angle ABC = 180^\circ$
- B.  $\angle DAB + \angle CDA = 180^\circ$
- C.  $\overline{AB} \cong \overline{DC}$
- D.  $\overline{AD} \cong \overline{BC}$

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



- A.  $\angle BAC \cong \angle BCE$
- B.  $\angle ABC \cong \angle BCE$
- C.  $\angle ACD \cong \angle BCE$
- D.  $\angle BAC \cong \angle ABC$

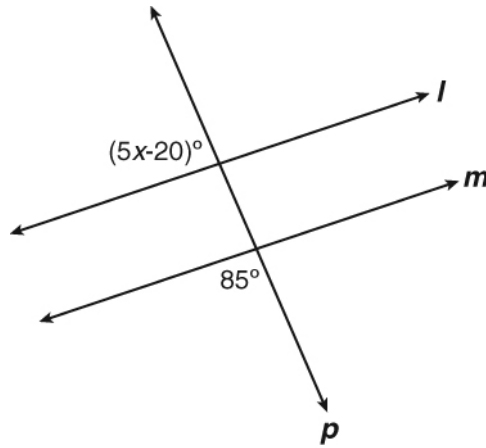
6. In the diagram below,  $\overline{NP} \perp \overline{NR}$  and  $\overline{NQ} \perp \overline{NS}$



If  $m\angle 2$  is  $55^\circ$ , what is  $m\angle 4$ ?

- A.  $25^\circ$
- B.  $35^\circ$
- C.  $45^\circ$
- D.  $55^\circ$

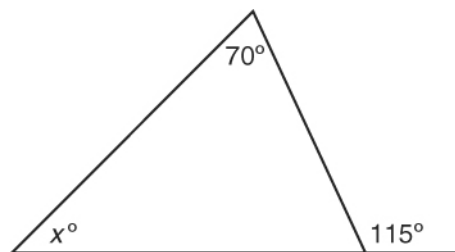
7. In the diagram below, lines  $l$  and  $m$  are parallel lines cut by transversal line  $p$ .



What is the value of  $x$ ?

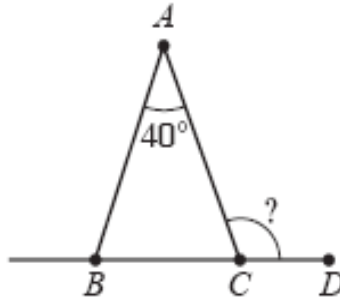
- A. 21
- B. 23
- C. 40
- D. 57

8. What is the value of  $x$  in the figure below?



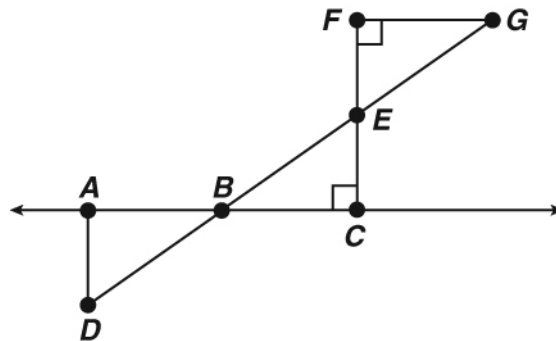
- A. 22.5
- B. 45
- C. 55
- D. 57.5

9. As shown in the figure below,  $\triangle ABC$  is isosceles with length of  $\overline{AB}$  equal to the length of  $\overline{AC}$ . The measure of  $\angle A$  is  $40^\circ$  and points B, C, and D are collinear. What is the measure of  $\angle ACD$  ?



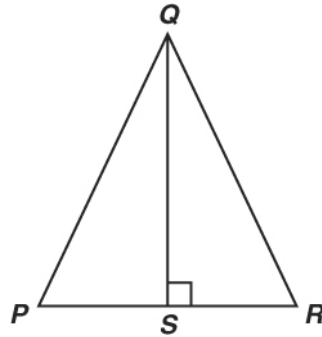
- A.  $70^\circ$
- B.  $80^\circ$
- C.  $110^\circ$
- D.  $140^\circ$

10. In the figure below,  $\triangle BCE$  and  $\triangle EFG$  are right triangles. Given that  $m\angle ABD = 35^\circ$ , what is the measure of  $\angle FEG$ ?



- A.  $35^\circ$
- B.  $45^\circ$
- C.  $55^\circ$
- D.  $90^\circ$

11. Which would be the BEST choice for the first step in proving that  $\triangle PQR$  below is isosceles?



- A. assume that  $\overline{QP} \cong \overline{QR}$
- B. assume that  $\overline{QS} \cong \overline{QR}$
- C. assume that  $\angle PQS > \angle SQR$
- D. assume that  $\angle PSQ > \angle RSQ$

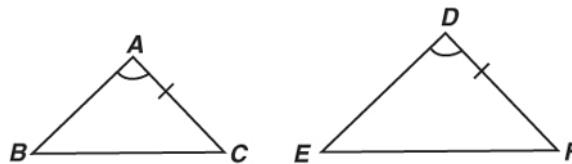
12. Reynaldo's instructions for completing a proof are shown below.

**Given:**

$$\angle A \cong \angle D, \overline{AC} \cong \overline{DF}, \overline{AB} \text{ is not } \cong \overline{DE}$$

**Prove:**

$$\angle B \text{ is not } \cong \angle E$$

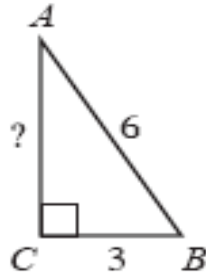


Which assumption below can be used to do a proof by contradiction?

- A. assume  $\angle B \cong \angle E$
- B. assume  $\overline{AB} \cong \overline{DE}$

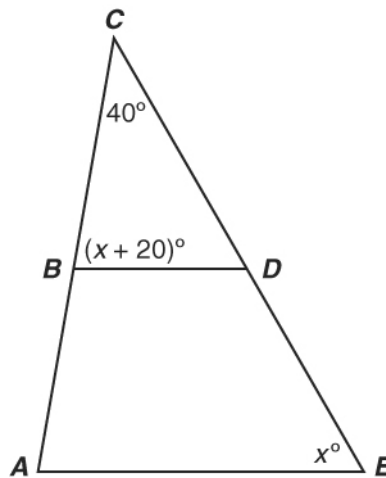
- C. assume  $\angle B$  is not  $\cong \angle E$
- D. assume  $\overline{BC}$  is not  $\cong \overline{EF}$

13. In the figure below,  $\triangle ABC$  is a right triangle. The length of  $\overline{AB}$  is 6 units and the length of  $\overline{CB}$  is 3 units. What is the length, in units, of  $\overline{AC}$  ?



- A. 5
- B.  $3\sqrt{3}$
- C.  $3 + \sqrt{5}$
- D.  $3\sqrt{6}$

14. In the triangle below,  $\overline{AE} \parallel \overline{BD}$ .



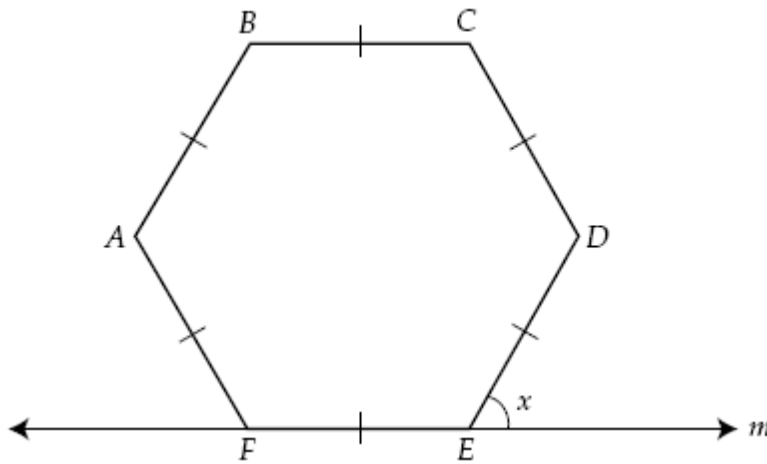
What is the value of  $x$ ?

- A.  $40^\circ$
- B.  $50^\circ$



- C.  $60^\circ$
- D.  $70^\circ$

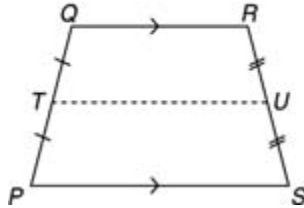
15. Figure ABCDEF below is a regular hexagon with line  $m$  passing through side EF.



What is the measure of  $\angle x$ ?

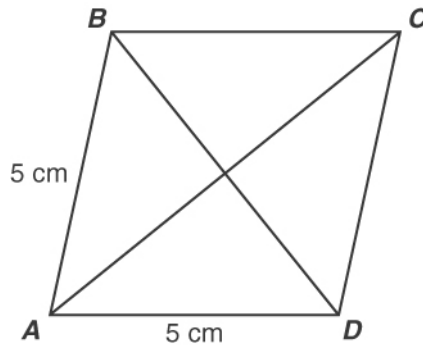
- A.  $75^\circ$
  - B.  $60^\circ$
  - C.  $51^\circ$
  - D.  $45^\circ$
16. In a polygon, with  $n$  sides, the sum of the measures of the interior angles is equal to:
- A.  $180^\circ(n - 2)$
  - B.  $180^\circ(n + 2)$
  - C.  $360^\circ(n - 2)$
  - D.  $360^\circ$

17.  $QRSP$  is a trapezoid. The median  $TU$  measures 10cm, and  $PS$  measures 12cm. What is the length of  $\overline{QR}$ ?



- A. 10.5
- B. 10
- C. 9
- D. 8

18. Each side of rhombus  $ABCD$  is 5 centimeters in length. The length of  $\overline{AC}$  is 8 centimeters and the length of  $\overline{BD}$  is 6 centimeters.

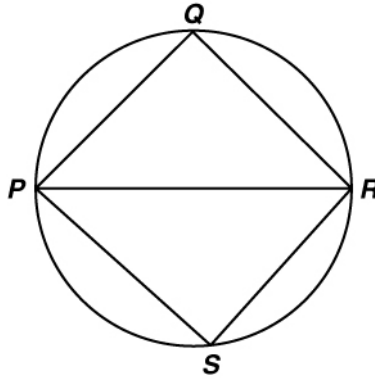


What is the area of the rhombus, in square centimeters?

- A. 24
- B. 25

- C. 34
- D. 48

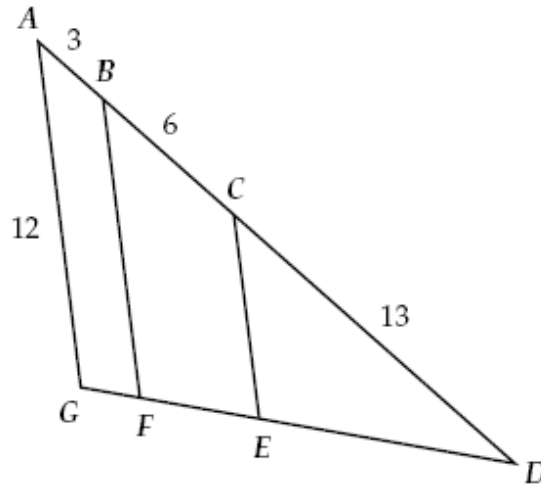
19. In the diagram below,  $\overline{PR}$  is a diameter of the circle.



Which of these angles must be a right angle?

- A.  $\angle PQR$
- B.  $\angle PRQ$
- C.  $\angle QRS$
- D.  $\angle QPS$

20. In triangle ADG below, the length of side DG is 18 units. Line segments AG, BF, and CE are all parallel.

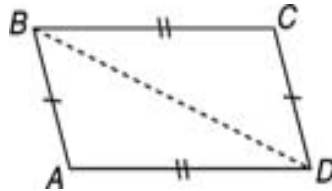


What is the approximate length of line segment EG?

- A. 4.9 units
- B. 7.4 units

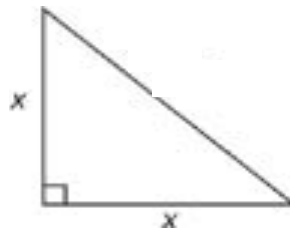
- C. 11.0 units
- D. 12.5 units

21. What geometric theorem would be used to prove that triangle  $BAD \cong DCB$



- A. SAS
- B. ASA
- C. SSS
- D. HL

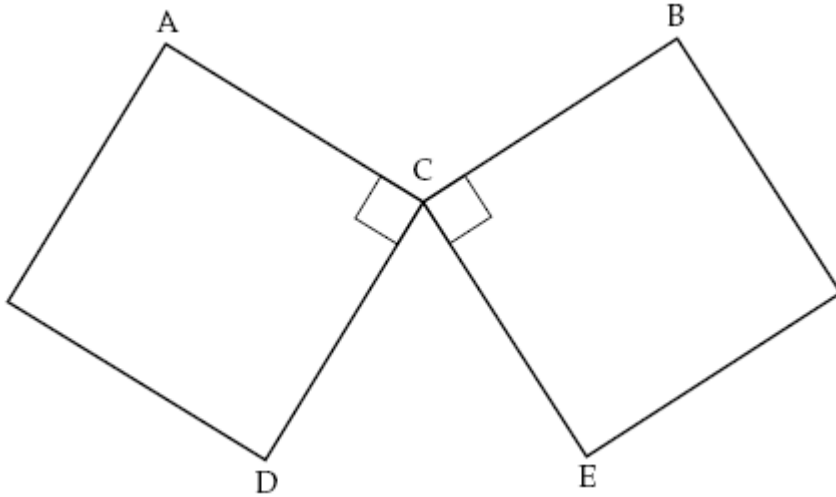
22. If one of the equal sides of an isosceles right triangle is 3, what are the measures of the two other sides?



- A. 3 and  $3\sqrt{2}$
- B. 3 and  $3\sqrt{3}$

- C. 3 and 3
- D. 3 and 4

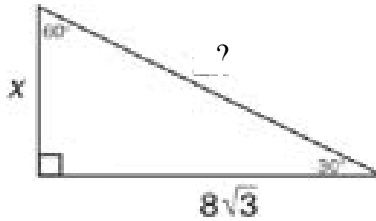
23. The two squares below intersect at point C.



What is the sum of the measures of  $\angle ACB$  and  $\angle DCE$  in degrees?

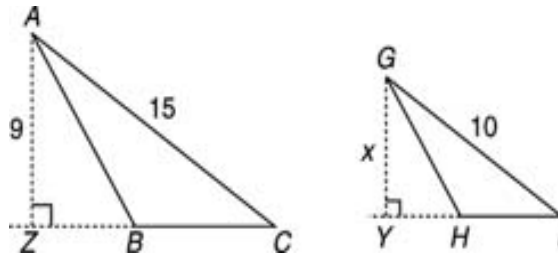
- A.  $360^\circ$
- B.  $270^\circ$
- C.  $180^\circ$
- D.  $135^\circ$

24. If the longer leg of a  $30 - 60 - 90$  right triangle is  $8\sqrt{3}$ , find the length of the hypotenuse.



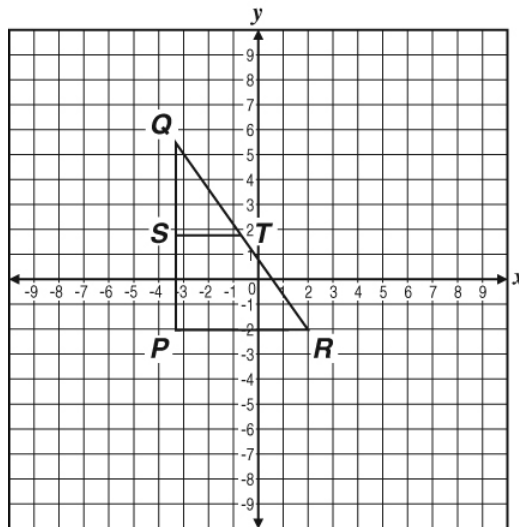
- A. 20
- B. 16
- C. 12
- D. 8

25. What is the value of  $x$  if  $\triangle ABC \approx \triangle GHI$  ?



- A. 9
- B. 8
- C. 6
- D. 5

26. In the figure below,  $\overline{ST}$  connects to the midpoints of two sides of  $\triangle PQR$ .

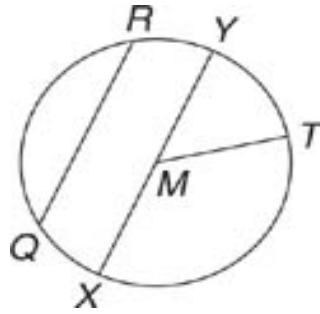


Which statement must be true?

- A.  $\overline{QP} \perp \overline{PR}$
- B.  $RT < QT$
- C.  $SQ = TQ$

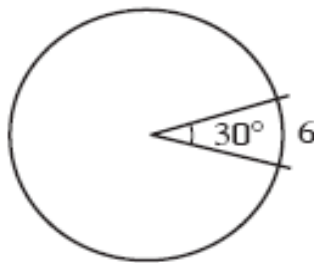
D.  $\overline{TS} \parallel \overline{RP}$

27. In circle M below,  $\overline{XY}$  is which of the following:



- A. a radius
- B. a chord
- C. a diameter
- D. a chord/diameter

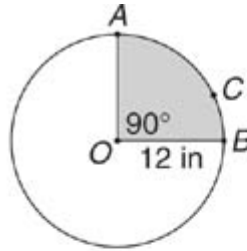
28. If a central angle of measure  $30^\circ$  is subtended by a circular arc of length 6meters, as illustrated below, how many meters in length is the radius of the circle?



- A.  $\frac{\pi}{36}$
- B.  $\frac{1}{5}$
- C.  $\frac{36}{\pi}$

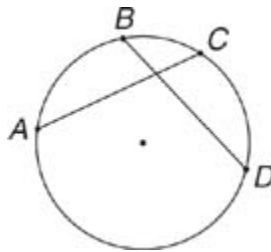
D.  $\pi$

29. Use the figure below to find the area of sector OACB



- A.  $36\pi \text{ in}^2$
- B.  $90\pi \text{ in}^2$
- C.  $144\pi \text{ in}^2$
- D.  $180\pi \text{ in}^2$

30. In the figure below, the measure of arc  $AC$  is  $115^\circ$ , the measure of arc  $BD$  is  $115^\circ$ , and  $\overline{BD}$  is  $10 \text{ in}$ . What is the length of  $\overline{AC}$  ?

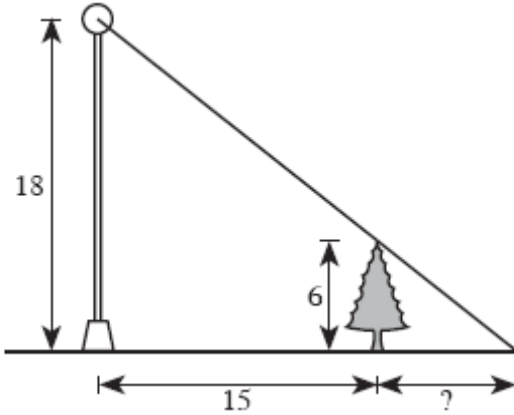


- A. 8
- B. 10
- C. 12



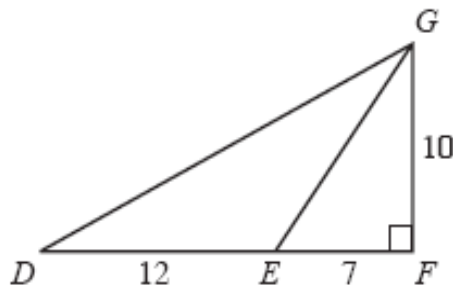
D. 15

31. A 6 foot spruce tree is planted 15 feet from a lighted streetlight whose lamp is 18 feet above the ground. How many feet long is the shadow of the tree?



- A. 5.0
- B. 7.5
- C. 7.8
- D. 9.6

32. In the figure below, the lengths of  $\overline{DE}$ ,  $\overline{EF}$ , and  $\overline{FG}$  are given, in units. What is the area, in square units of  $\triangle DEG$ ?



- A. 29
- B. 47.5
- C. 60
- D.  $6\sqrt{149}$

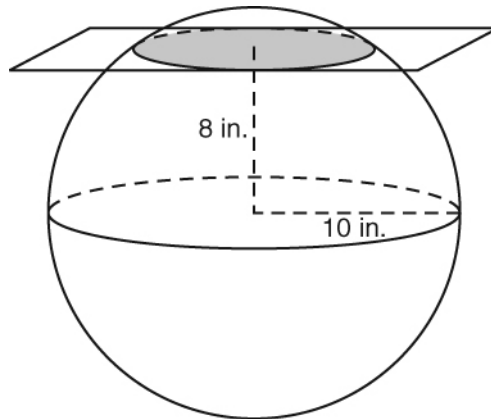
33. Paul bought a piece of cheese that was in the shape of a cylinder, as shown below.



He unwrapped the cheese and cut a slice of even thickness off of the end. What would be the shape of the cheese slice?

- A. circle
- B. triangle
- C. rectangle
- D. square

34. A sphere with a 10-inch radius intersects a plane that is 8 inches from the sphere's center as shown below.

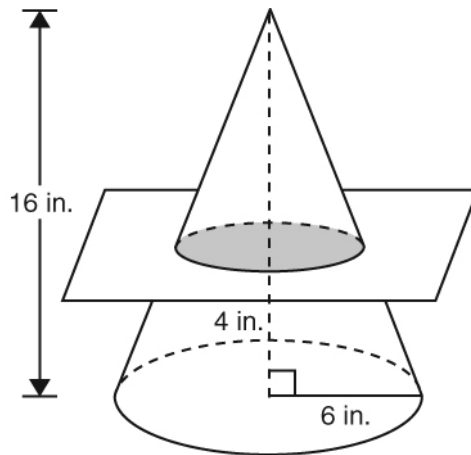


What is the circumference, in inches, of the circle formed where the plane intersects the sphere?

- A.  $4\pi$
- B.  $12\pi$

- C.  $20\pi$
- D.  $36\pi$

35. A cone with a base radius of 6 inches and a height of 16 inches is intersected by a plane that is 4 inches from the parallel base.



What is the volume of the cone that has its base in the intersecting plane?

- A.  $81\pi$
- B.  $111\pi$
- C.  $192\pi$
- D.  $243\pi$