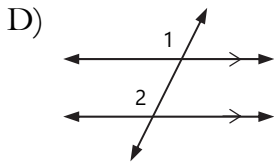
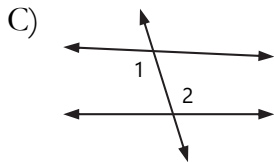
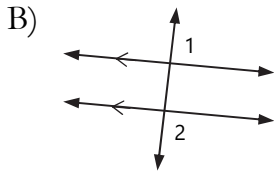
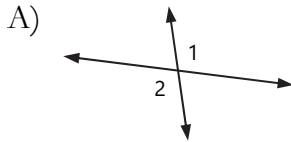


# LESSON 179 Final Exam Practice Test

This is a practice test for your final exam. It is usually a good practice to take a practice test just like a real exam. Read the directions in Lesson 180. When you are ready, begin the test.

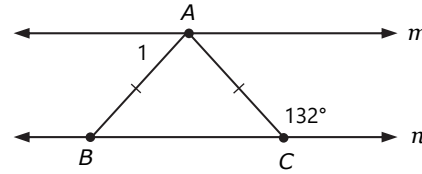
1. In which diagram is  $\angle 1$  congruent to  $\angle 2$ ?  
Select all that apply.



2. Which conjecture is always true? Select all that apply.

- A) If  $n$  is even, then  $n^2$  is even.
- B) All circles are similar.
- C) Vertical angles are congruent.
- D) Every angle has a supplement.
- E) An equilateral triangle is isosceles.
- F) A rhombus is a square.

3. Find the measure of  $\angle 1$  if  $m \parallel n$ .



4. Which solid can have a triangle as a cross section? Select all that apply.

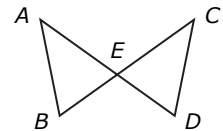
- A) cube
- B) square pyramid
- C) cone
- D) triangular prism
- E) sphere
- F) cylinder

5. A right triangle has acute angles measuring  $x^\circ$  and  $y^\circ$ . If  $\tan x^\circ = 1$ , what is the value of  $\cos y^\circ$ ?

6. Complete the proof. Give reasons for Steps 2 and 3.

Given:  $\overline{AB} \cong \overline{CD}$ ,  
 $\angle A \cong \angle C$

Prove:  $\angle B \cong \angle D$



STATEMENTS	REASONS
1. $\overline{AB} \cong \overline{CD}$ , $\angle A \cong \angle C$	1. Given
2. $\angle AEB \cong \angle CED$	2.
3. $\triangle ABE \cong \triangle CDE$	3.
4. $\angle B \cong \angle D$	4. CPCTC

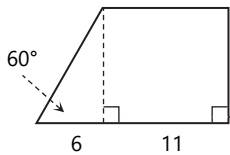
7. A coin is tossed twice. What is the probability of getting at least one heads?

8. A triangle cannot have two obtuse angles.

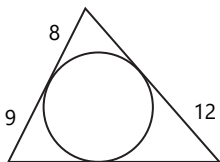
Order the steps to prove this statement using indirect proof.

- A) This contradicts that the sum of the angles of a triangle is always  $180^\circ$ .
- B) If a triangle has two obtuse angles, then the sum of its angles is greater than  $180^\circ$ .
- C) Assume that a triangle can have two obtuse angles.
- D) Therefore, a triangle cannot have two obtuse angles.

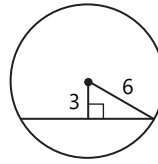
9. Find the area of the trapezoid in simplest radical form.



10. A triangle circumscribes a circle. Find the perimeter of the triangle.



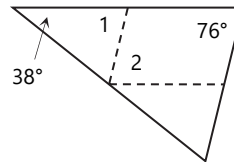
11. A chord is 3 cm from the center of a circle with radius 6 cm. Find the length of the chord.



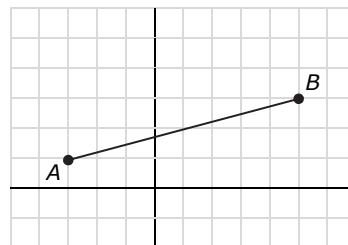
12. Which quadrilateral has diagonals that bisect each other? Select all that apply.

- A) parallelogram
- B) rhombus
- C) rectangle
- D) square
- E) trapezoid
- F) kite

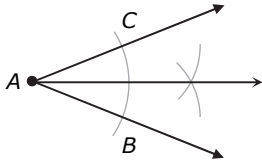
13. The dashed segments are midsegments of the triangle. Find  $m\angle 1$  and  $m\angle 2$ .



14. Write an equation of the perpendicular bisector of  $\overline{AB}$ . Write your answer in slope-intercept form.

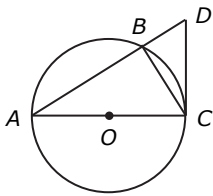


15. Which construction is shown in the diagram?



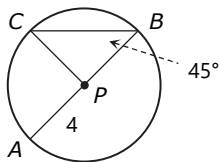
- A) angle bisector
- B) congruent angle
- C) perpendicular bisector
- D) parallel line through a point

16. In circle  $O$ ,  $\overline{AC}$  is a diameter and  $\overline{CD}$  is a tangent. Name all right angles.



17.  $\overline{AB}$  is a directed line segment from  $A(1, 9)$  to  $B(5, 1)$ . Find point  $P$  that partitions  $\overline{AB}$  in the ratio 1:3.

18. In circle  $P$ ,  $AP = 4$  and  $m\angle ABC = 45^\circ$ . Find the area of sector  $APC$ . Leave  $\pi$  in your answer.



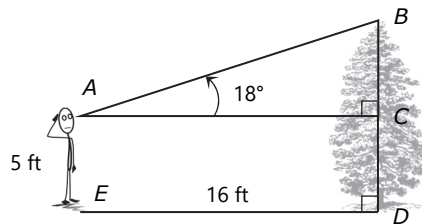
19. A figure is reflected over the  $x$ -axis and then reflected over the  $y$ -axis. Which single transformation results in the same image?

- A) a reflection over the line  $y = x$
- B) a reflection over the line  $y = -x$
- C) a rotation of  $90^\circ$  counterclockwise about the origin
- D) a rotation of  $180^\circ$  counterclockwise about the origin

20. Select all statements that are true.

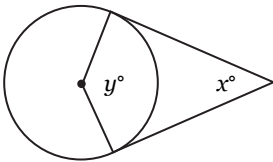
- A) A centroid is always inside its triangle.
- B) A circumcenter is equidistant from the sides of its triangle.
- C) An orthocenter can be outside of its triangle.
- D) An incenter is a point where three medians of a triangle intersect.

21. Charlotte is 5-ft tall and standing 16 ft from the base of a tree. She can see the top of a tree at an angle of elevation of  $18^\circ$ . How tall is the tree? Round your answer to the nearest tenth.

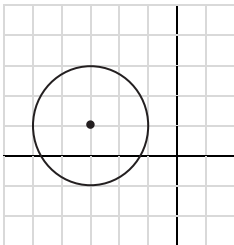


22. In a group of 40 students, 25 take Biology, 20 take Chemistry, and 7 take neither. What is the probability that a randomly selected student takes Chemistry only? Give your answer as a percent.

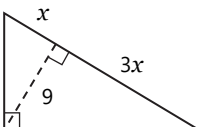
23. Two tangents intersect outside a circle. What is the value of  $x + y$ ?



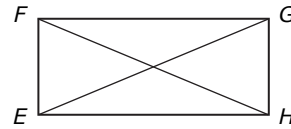
24. Write the equation of the circle in standard form (center-radius form).



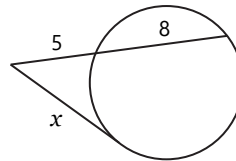
25. The altitude to the hypotenuse of a right triangle divides the hypotenuse into two segments. One segment is three times as long as the other. If the altitude is 9 cm long, what is the length of the shorter segment in simplest radical form?



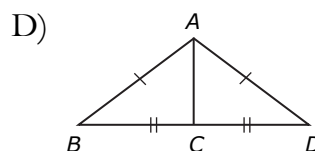
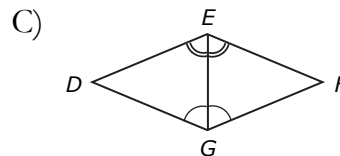
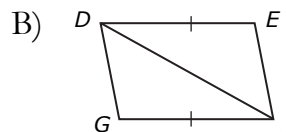
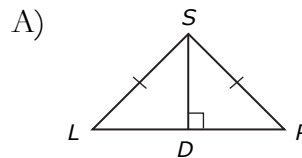
26. Quadrilateral  $EFGH$  is a rectangle. What is  $FH$  if  $EH = 12$  and  $GH = 5$ ?



27. A tangent and a secant intersect outside a circle. Find the value of  $x$ .

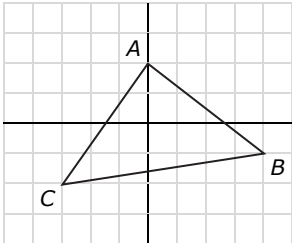


28. Which pair of triangles cannot be proved congruent? Select all that apply.



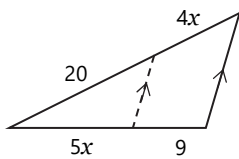
29. Eight different points are selected on a circle. How many inscribed triangles can be drawn using these points as vertices?

30. Find the perimeter of the triangle in simplest radical form.



31. Quadrilateral  $ABCD$  has vertices  $A(1, 0)$ ,  $B(0, 2)$ ,  $C(-1, 0)$ , and  $D(0, -2)$ . Which name best describes the quadrilateral?
- A) square                      B) rhombus  
C) rectangle                  D) parallelogram

32. The dashed segment is parallel to a side of the triangle. Find the value of  $x$ .

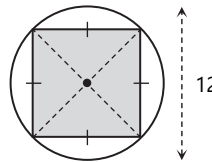


33. Water weighs about 62 pounds per cubic foot. An aquarium is a rectangular box 4 feet long, 3 feet wide, and 2 feet tall. How many pounds of water can the aquarium hold?

34. The volume of a sphere with radius  $r$  is  $V = \frac{4}{3}\pi r^3$ .

A spherical balloon with radius 6 inches is leaking air at 20 cubic inches per minute. How long will it take for the balloon to empty fully? Use  $22/7$  as an approximation for  $\pi$ . Round all calculations to the nearest whole number.

35. A square is inscribed within a circle with diameter 12 cm. A point is randomly selected in the circle. What is the probability that the point is in the square? Leave  $\pi$  in your answer.



**STOP**

This is the end of the test.  
Review your answers before grading.