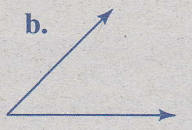
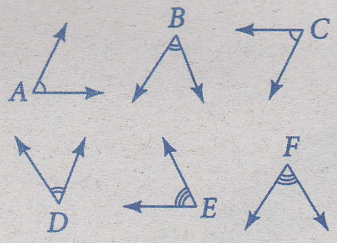
14. Estimate the measure of each angle. Then use a protractor to find the measure.

a. 

b. 

c. 

15. Classify each angle in Exercise 14 as *acute, obtuse,* or *right.*



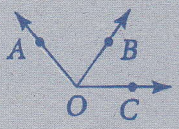
Angles with the same measure are **congruent**. In other words, if $m\angle 1 = m\angle 2$, then $\angle 1 \cong \angle 2$. You can use these statements interchangeably. Angles can be marked alike to show that they are congruent.

16. Name the congruent angles shown at the left.

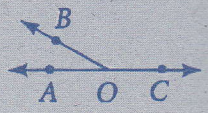
The Angle Addition Postulate is very similar to the Segment Addition Postulate. Notice that it has a special case for straight angles.

Postulate 1-8 Angle Addition Postulate

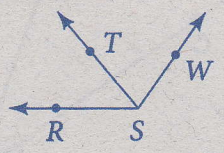
If point B is in the interior of $\angle AOC$, then $m\angle AOB + m\angle BOC = m\angle AOC$.



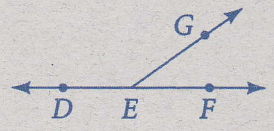
If $\angle AOC$ is a straight angle, then $m\angle AOB + m\angle BOC = 180°$.



17. a. $m\angle RST = 50°$ and $m\angle RSW = 125°$ What is $m\angle TSW$?



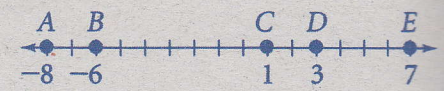
b. $m\angle DEG = 145°$ What is $m\angle GEF$?



Exercises ON YOUR OWN

Complete each equation.

1. $AC =$ ■ **2.** $BD =$ ■ **3.** $AD =$ ■ **4.** $BE =$ ■



Exs. 1–10

Write *true* or *false*.

5. $\overline{AB} \cong \overline{ED}$ **6.** $BD < CD$ **7.** $AC + BD = AD$ **8.** $AC + CD = AD$

9. Name two pairs of congruent segments.

10. $EG = 5$. Find the coordinate of point G. Is there another possibility?

Use the figure at the right for Exercises 11–14.

11. If $RS = 15$ and $ST = 9$, then $RT =$ ■.

12. If $ST = 15$ and $RT = 40$, then $RS =$ ■.

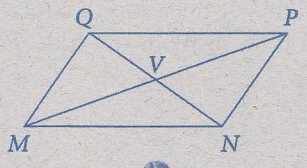
13. Algebra If $RS = 3x + 1$, $ST = 2x - 2$, and $RT = 64$, find the value of x. Then find RS and ST.

14. Algebra If $RS = 8y + 4$, $ST = 4y + 8$, and $RT = 15y - 9$, find the value of y. Then find RS and ST.

Use the figure at the right for Exercises 15–17.

15. If $m\angle MQV = 90°$ and $m\angle VQP = 35°$, what is $m\angle MQP$?

16. If $m\angle MVQ = 55°$, what is $m\angle QVP$?



17. Judging by appearance, name each of the following.
- **a.** two acute angles
- **b.** two obtuse angles
- **c.** two right angles

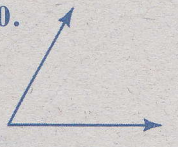
18. Without using your protractor, sketch angles with the following measures. Then use your protractor to see how close you are.

a. 30° **b.** 60° **c.** 120°

19. Ski Jumping This ski jumper is using a new style of jumping. The skis are at an angle rather than parallel. Measure the angle formed by the two skis.

Estimation Estimate the measure of each angle. Then use a protractor to measure it. Classify each angle.

20.



21.

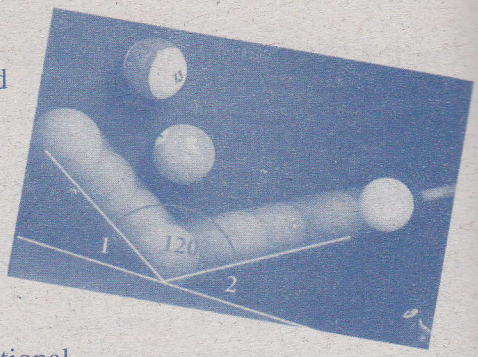
22.

24. Coordinate Geometry $AB = 12$. Point A has coordinates (3, 0). Give four possible locations for point B.

25. Open ended Name two times when the hands of a clock

- **a.** form an acute angle.
- **b.** form a right angle.
- **c.** form an obtuse angle.
- **d.** form a straight angle.

26. Billiards In billiards, the cue ball may bounce off a cushion on any shot. If there is no spin on the shot, $\angle 1$ and $\angle 2$ will be congruent. Find the measures of $\angle 1$ and $\angle 2$.

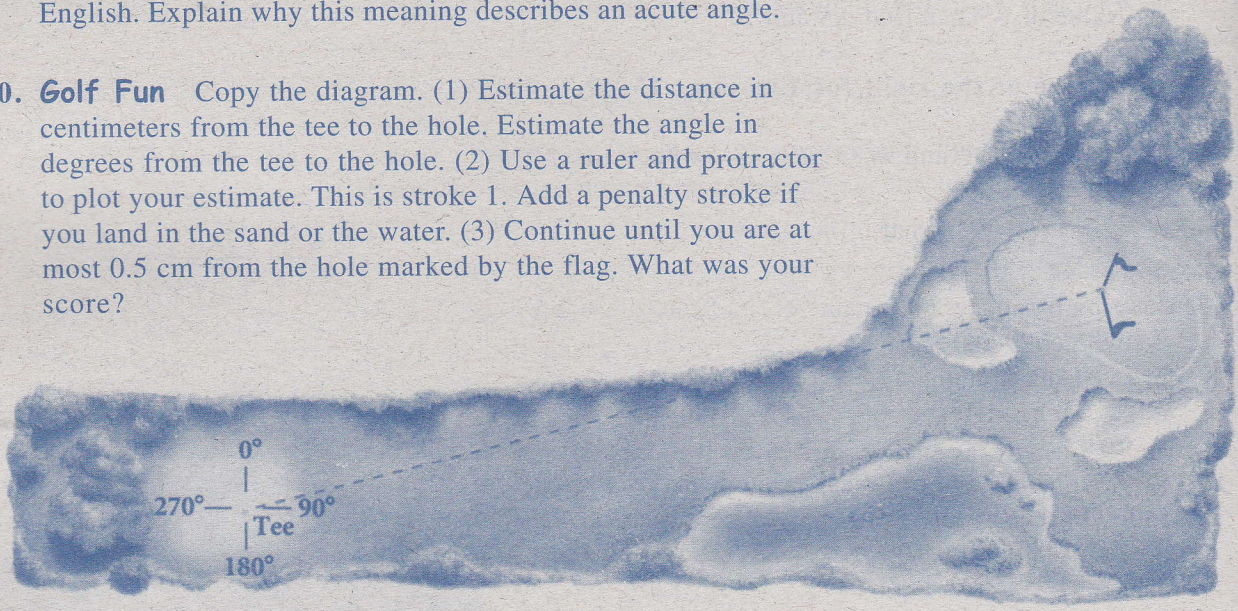


27. Algebra If $AD = 12$ and $AC = 4y - 36$, find the value of y.

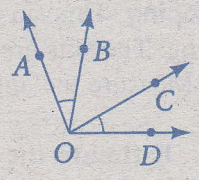
28. Algebra If $ED = x + 4$ and $DB = 3x - 8$, find EB.

29. Writing The word "acute" can mean *sharp* in conversational English. Explain why this meaning describes an acute angle.

30. Golf Fun Copy the diagram. (1) Estimate the distance in centimeters from the tee to the hole. Estimate the angle in degrees from the tee to the hole. (2) Use a ruler and protractor to plot your estimate. This is stroke 1. Add a penalty stroke if you land in the sand or the water. (3) Continue until you are at most 0.5 cm from the hole marked by the flag. What was your score?



Algebra **Solve for x.**



31. $m\angle AOB = (4x - 2)°$, $m\angle BOC = (5x + 10)°$, $m\angle COD = (2x + 14)°$

32. $m\angle AOB = (4x + 3)°$, $m\angle BOC = 7x°$, $m\angle AOD = (16x - 1)°$

33. Decorating Japanese flower arranging makes precise use of angles to create a mood. A vertical stem is matched with 0°. Other stems are matched with numbers from 0° to 90° in both directions from the vertical. What numbers would the flowers shown be paired with on a standard protractor?