5.11

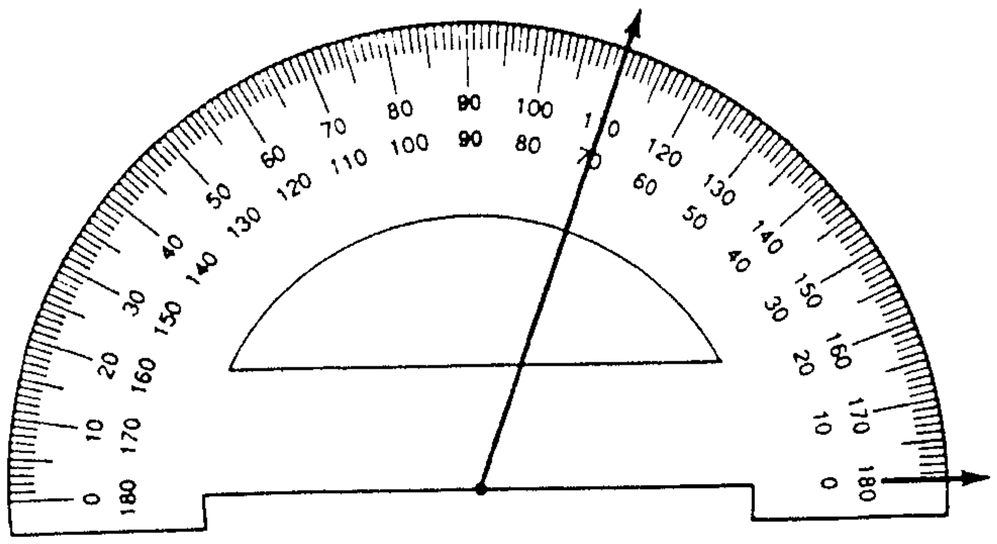
Skills Maintenance 13-3

Name _____

Measuring Angles

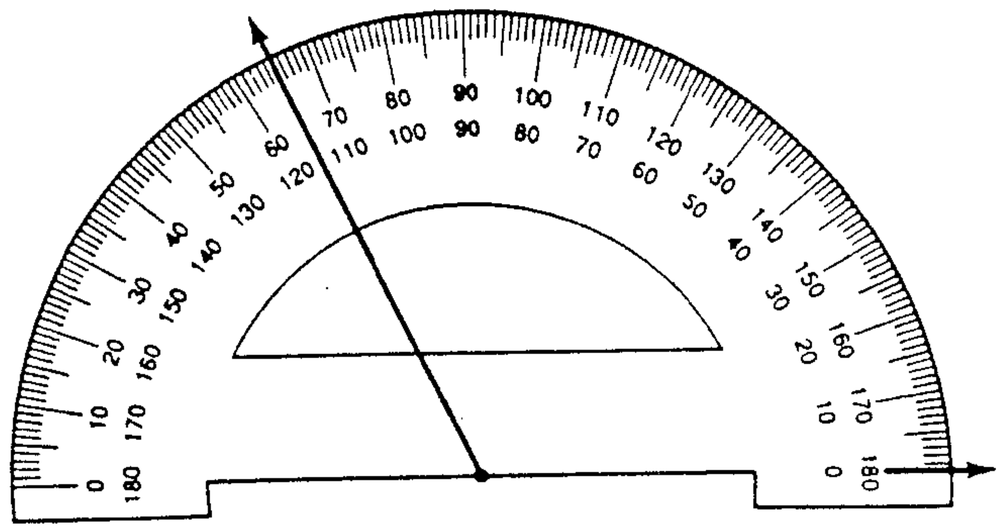
Write the measure of each angle.

1.



_____

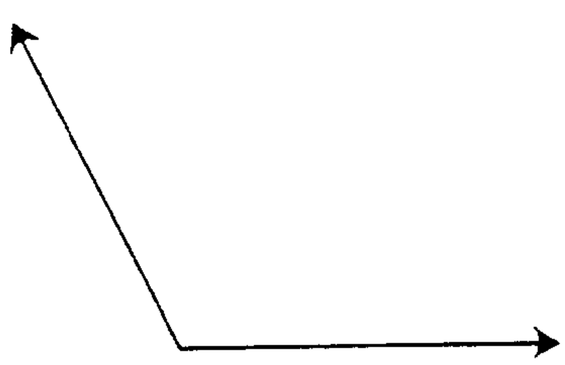
2.



_____

Estimate the measure of each angle. Then use a protractor to check your estimate. **Estimates will vary.**

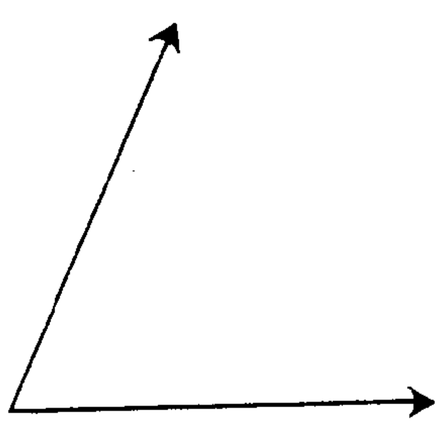
3.



Estimate: _____

Measure: _____

4.



Estimate: _____

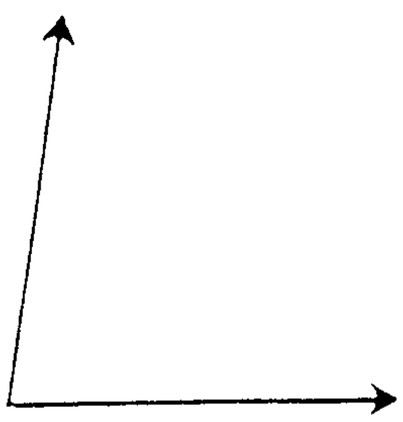
Measure: _____

5.

Estimate: _____

Measure: _____

6.



Estimate: _____

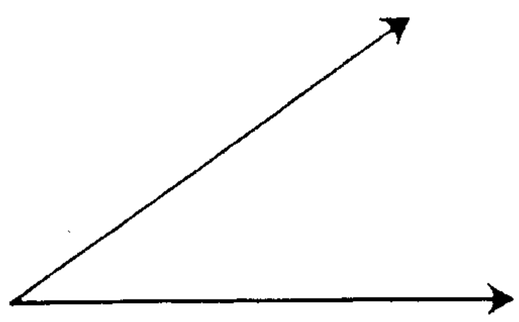
Measure: _____

7.

Estimate: _____

Measure: _____

8.



Estimate: _____

Measure: _____

5.14

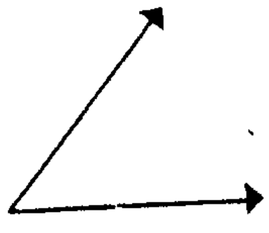
Name _____

4.3

USE WHAT YOU KNOW

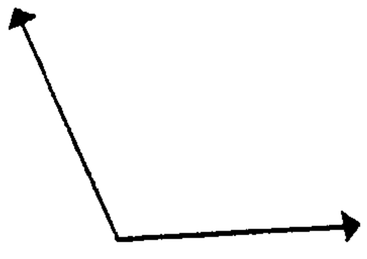
Exploring Angle Measurement

Estimate the angle measure. Then use a protractor to measure each angle. You may need to extend the rays.

1. 

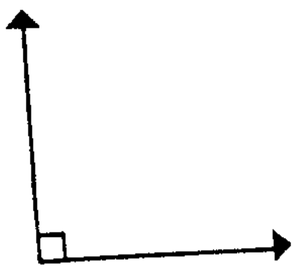
Estimate _____

Measure _____

2. 

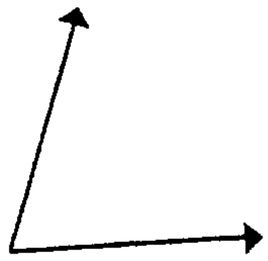
Estimate _____

Measure _____

3. 

Estimate _____

Measure _____

4. 

Estimate _____

Measure _____

Use a protractor to draw an angle with the given measure.

5. 45°

6. 90°

7. 120°

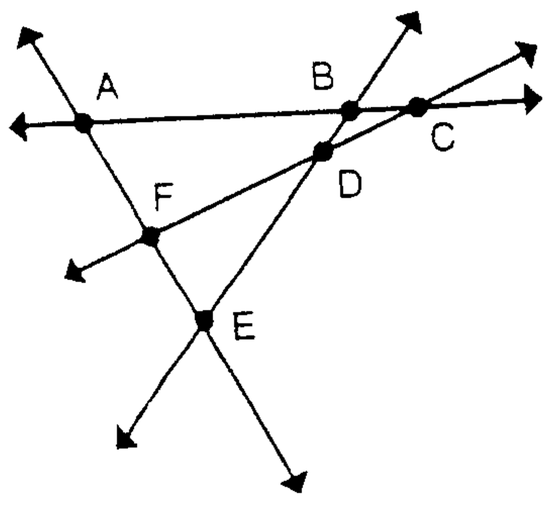
8. 25°

9. 75°

10. 145°

VISUAL THINKING

Points are *colinear* if they are on the same line.



11. Circle each group of points that are *colinear*.

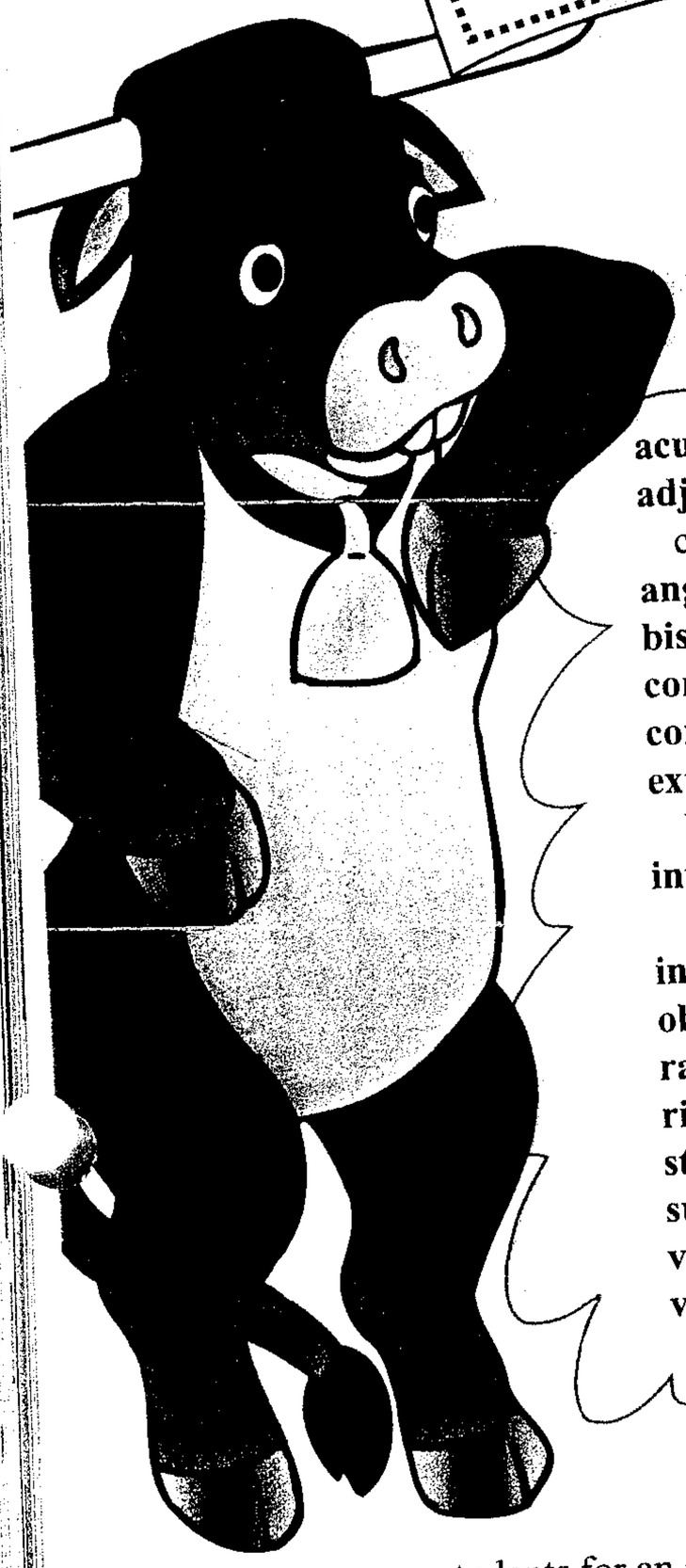
A, F, D	B, D, E	C, D, E
E, F, A	D, F, A	B, D, F
C, D, F	C, B, A	F, A, B

5.11

Wrangling With Angles

Steer students toward a greater understanding of angles with this corral full of "moo-velous" activities!

by Terry Healy, Eugene Field Elementary, Manhattan, KS



Math Lingo Related to Angles

acute angle—an angle that measures between 0° and 90°
adjacent angles—angles that have a common side and vertex but do not have any common interior points
angle—two rays with a common endpoint
bisect—to divide into two equal sections
complementary angles—two angles whose measurements add up to 90°
congruent angles—angles with the same measurement
exterior angle—an angle that is outside the region formed when two lines are intersected by a third line
interior angle—an angle that is inside the region formed when two lines are intersected by a third line
intersection—the point at which two lines, rays, etc. meet
obtuse angle—an angle that measures between 90° and 180°
ray—a part of a line that extends forever from an endpoint in one direction only
right angle—an angle that measures 90°
straight angle—an angle that measures 180°
supplementary angles—two angles whose measurements add up to 180°
vertex—the common endpoint of two rays that form an angle
vertical angles—two congruent angles that lie on opposite sides of two intersecting lines

Angle Roundup

Skill: Measuring angles

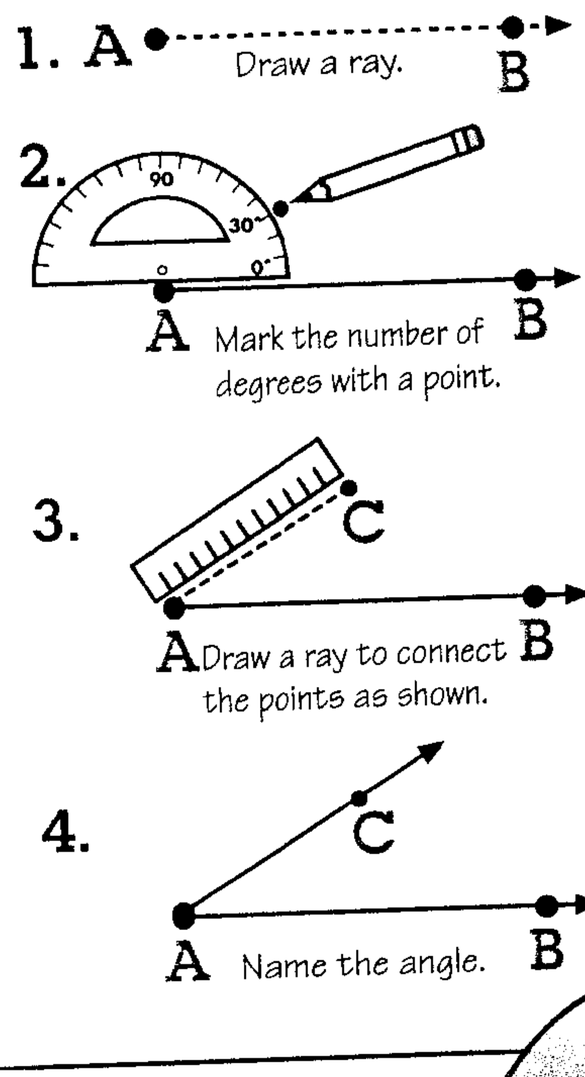
Round up your students for an activity that uses a simple clockface to practice measuring angles. Draw a clockface on a transparency (or go to www.themailboxcompanion.com to find a transparency master of the clockface). Explain that the circular face represents 360°. Then place the center of a clear plastic protractor's baseline along the hour hand, aligning it with the circle's center dot as shown. Demonstrate how to measure the angle, using the minute hand to find the number of degrees *(60°)*. Next, give each pair of students a protractor, ruler, pencil, and thin, white paper plate. Guide each twosome through the steps below. For a fun extension, have students complete copies of page 145 as directed.

Steps:

1. To turn the paper plate into a clockface, follow these steps:
   a. Fold the plate in half twice. Unfold the plate and draw a point at the intersection of the fold lines.
   b. Position the plate and protractor as shown. Mark a point at 0° and label it "12." Mark a point at 30° and label it "1." Mark additional points at 60°, 90°, 120°, 150°, and 180° to label the hours from 2:00 to 6:00.
   c. Rotate the protractor and label the other half of the plate in a similar way from 7:00 to 11:00.
2. Using the protractor's straight edge, lightly trace rays (the hour and minute hands) to represent 3:00. Measure the degrees represented by that angle *(90°)*. Then erase the rays.
3. Repeat Step 2 to find the degrees in the angles represented by 4:00 *(120°)* and 6:00 *(180°)*.

5.11

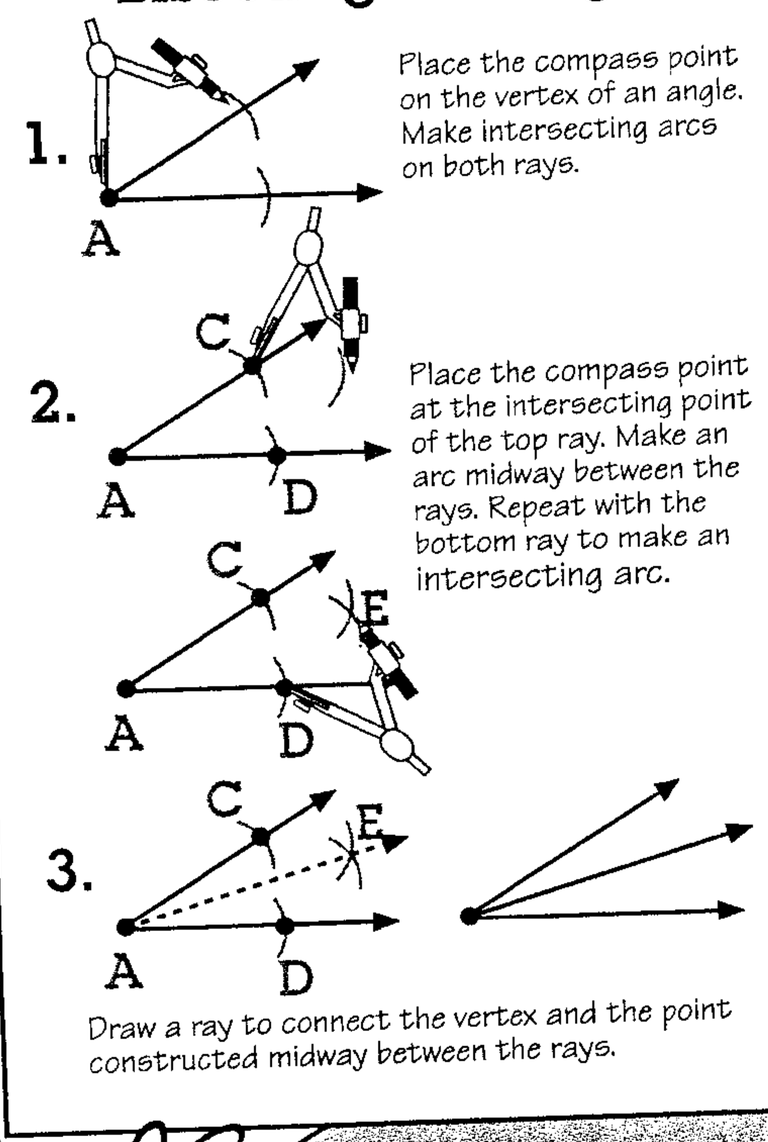
Constructing an Angle

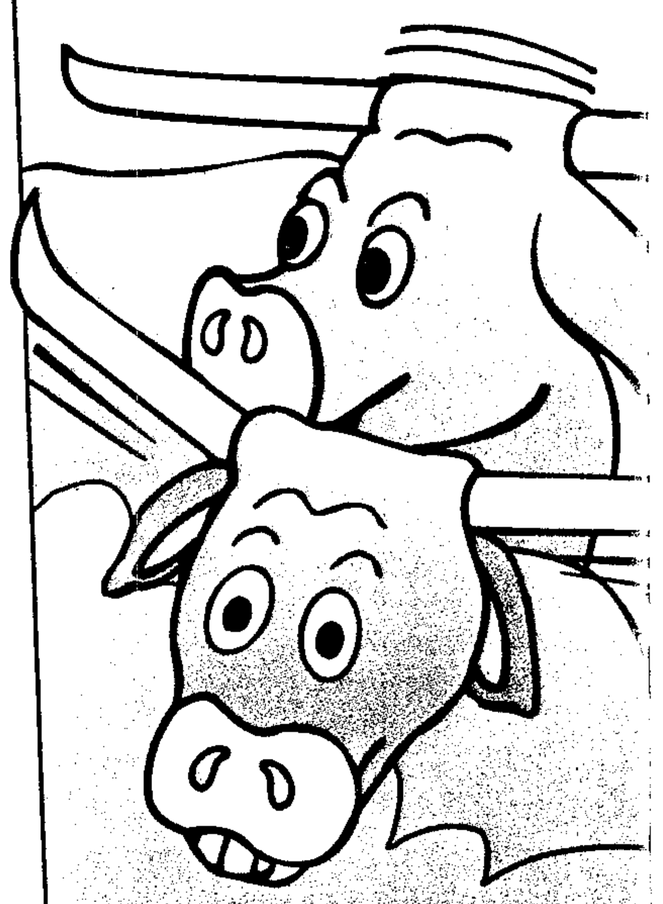


Skills: Constructing and bisecting angles

Use this partner activity to show students how easy constructing and bisecting angles can be. Enlarge the posters shown. Next, divide the class into two groups. Each student in the first group should have paper and a protractor; each student in the second group should have paper and a compass. Use the corresponding poster to teach members of the first group how to construct an angle. Then teach the second group how to bisect an angle. Finally, pair students so that each twosome has an expert on each skill. Have each child teach her skill to her partner. Then, to make sure everyone's on the right trail, have each student construct and bisect an angle for you to check.

Bisecting an Angle





Roping Angles

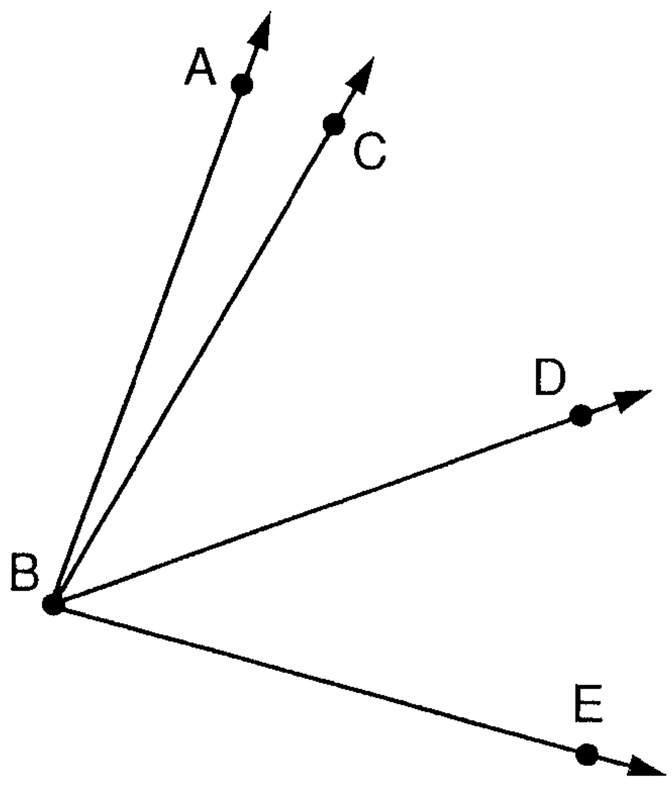
Skills: Identifying vertical, adjacent, and congruent angles

Help students rope a better understanding of vertical, adjacent, and congruent angles by using real ropes. Stretch out two jump ropes on the floor so that they intersect as shown. Add labeled index cards to name the points. Have volunteers name the four angles *(<ACD, <DCE, <BCE, <ACB)*. Guide students to identify the two sets of angles that are *congruent*, or equal in measurement *(<ACD and <BCE, <ACB and <DCE)*. Point out that these angles are opposite each other, making them *vertical angles*. Next, have students identify the *adjacent angles*, those that have a common side and share a vertex *(<ACD and <DCE, <DCE and <ECB, <BCE and <ACB, <ACB and <ACD)*. Continue crossing the ropes at different angles until each student has had a chance to identify these three types of angles.

Name _____ Measuring angles

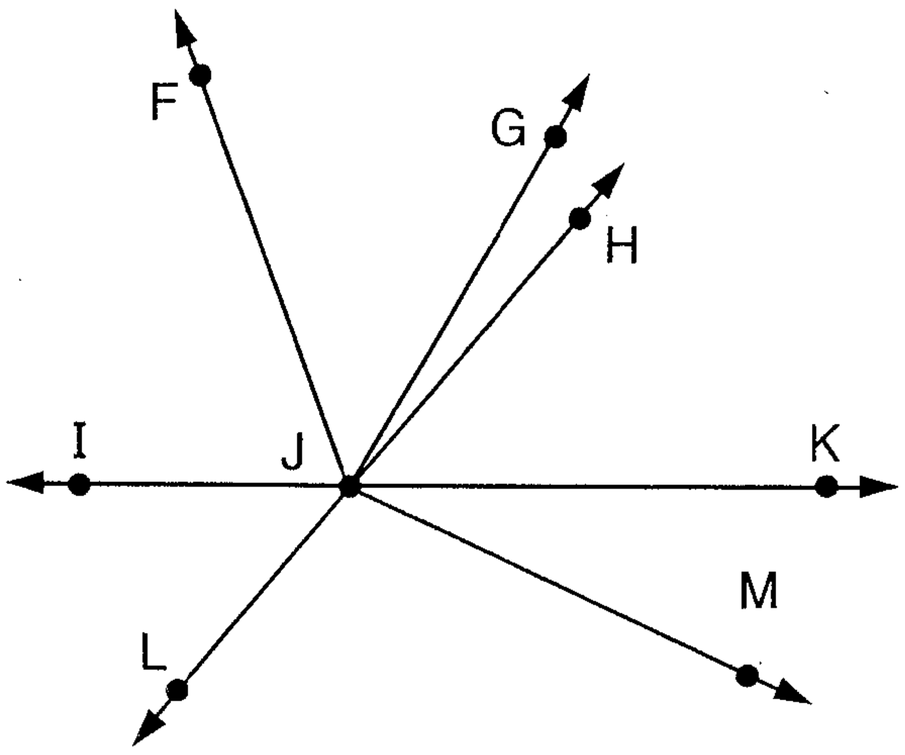
Cruisin' On!

Measure each angle with a protractor.
Record each measurement. Then find the sums.



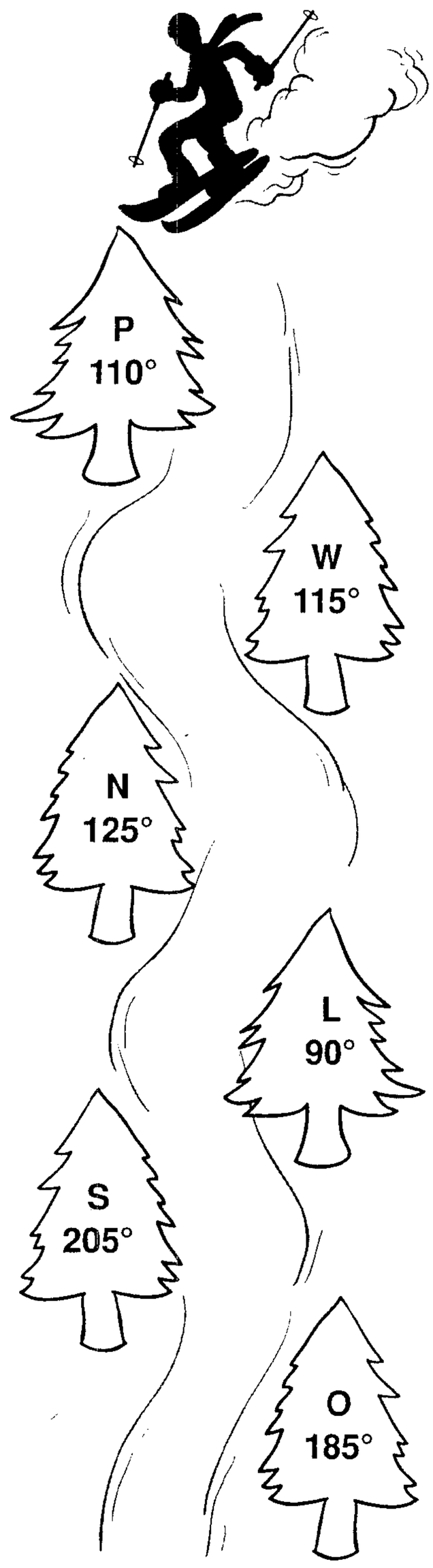
1. ∠ABD = _____
2. ∠CBE = _____
3. Sum = _____

4. ∠ABD = _____
5. ∠CBD = _____
6. Sum = _____



7. ∠FJM = _____
8. ∠HJK = _____
9. Sum = _____

10. ∠IJL = _____
11. ∠GJK = _____
12. Sum = _____



10. ∠LJM = _____
11. ∠GJH = _____
12. Sum = _____

16. ∠GJM = _____
17. ∠LJF = _____
18. Sum = _____

Complete the sentence by writing the letter for each sum on its matching numbered line below.

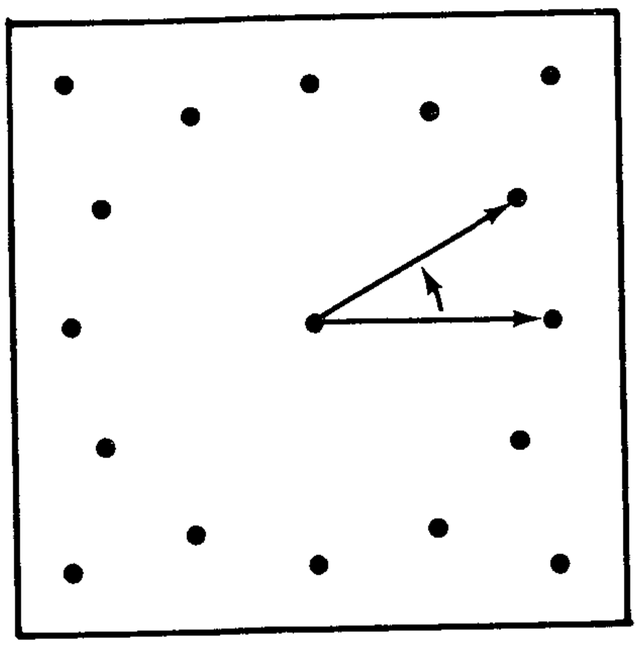
To control speed, a skier can do a ____ ____ ____ ____ ____ ____ ____ ____.

205° 125° 185° 115° 110° 90° 185° 115°

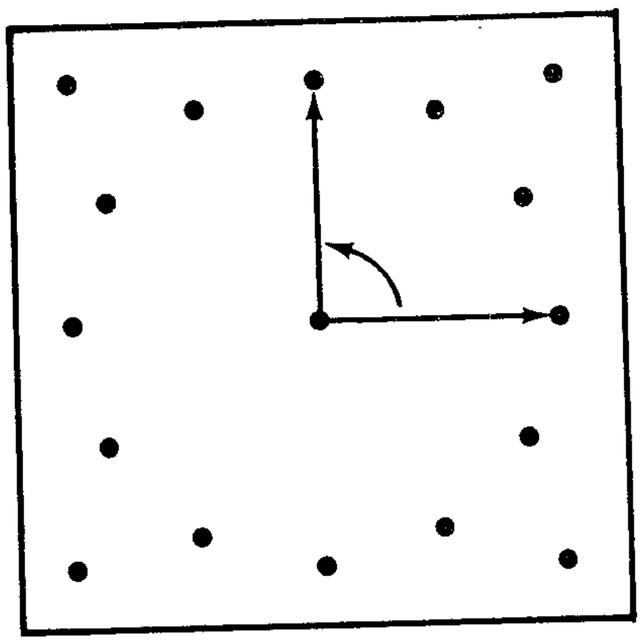
Name _____

Angles

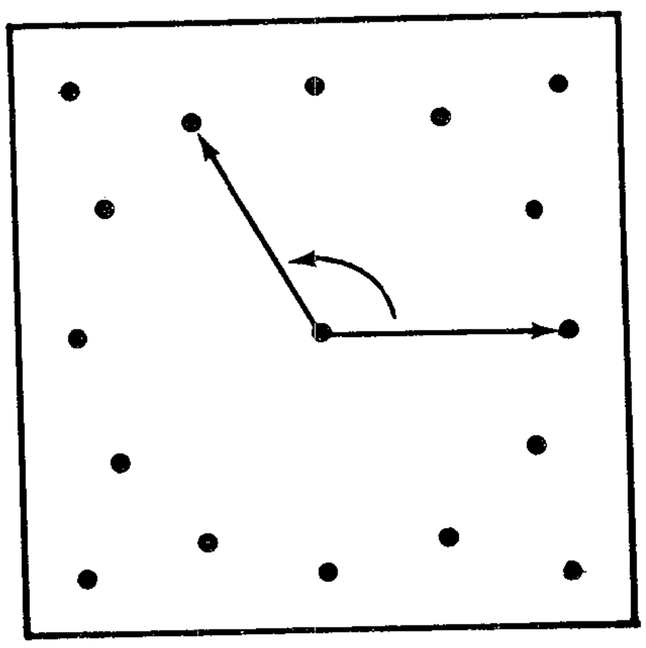
These geoboards show angles. How many degrees are in each angle?



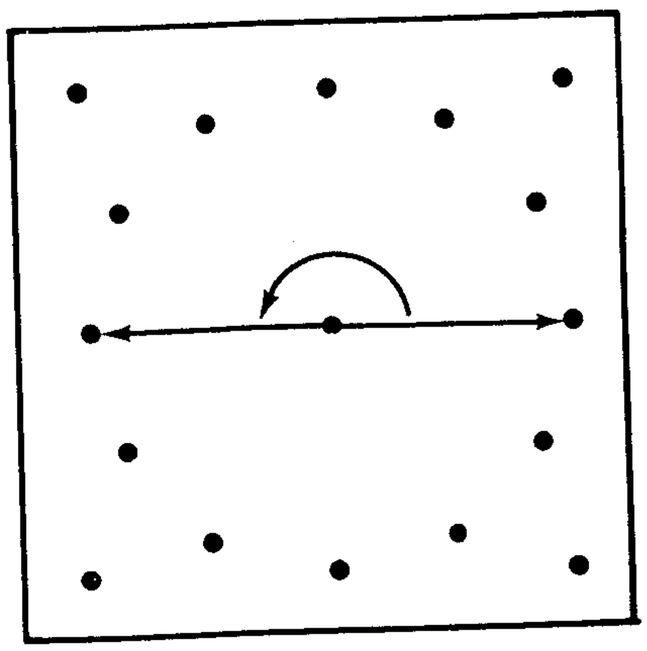
_____ degrees



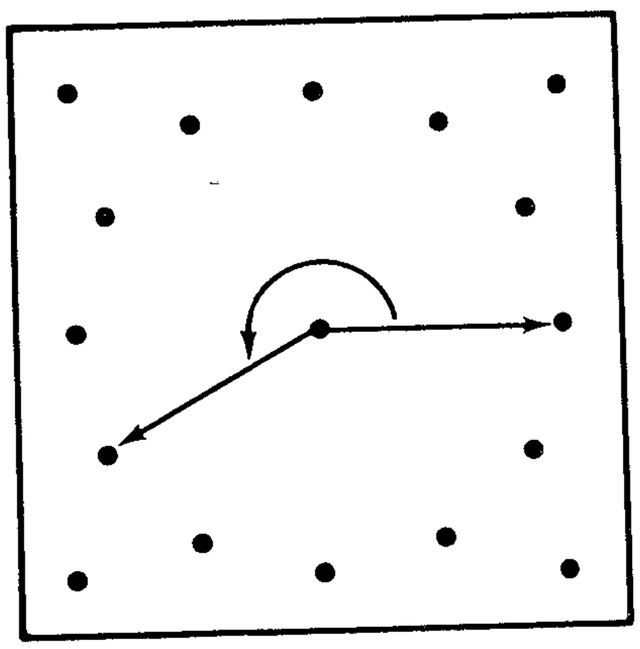
_____ degrees



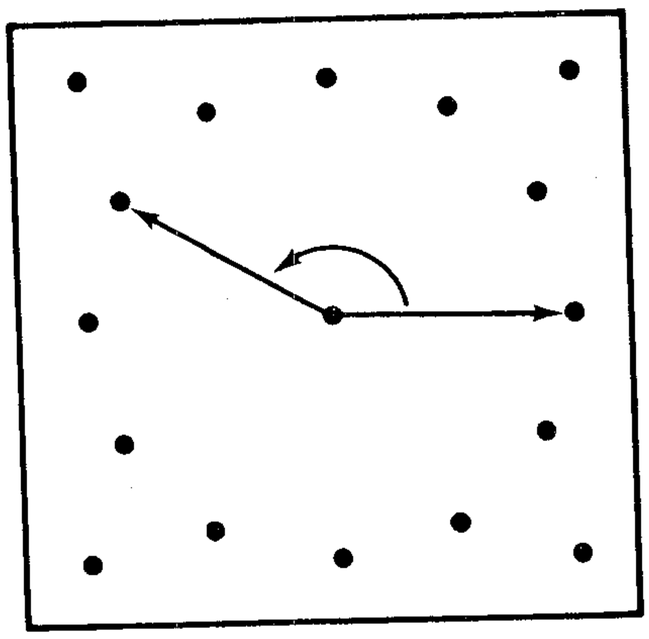
_____ degrees



_____ degrees

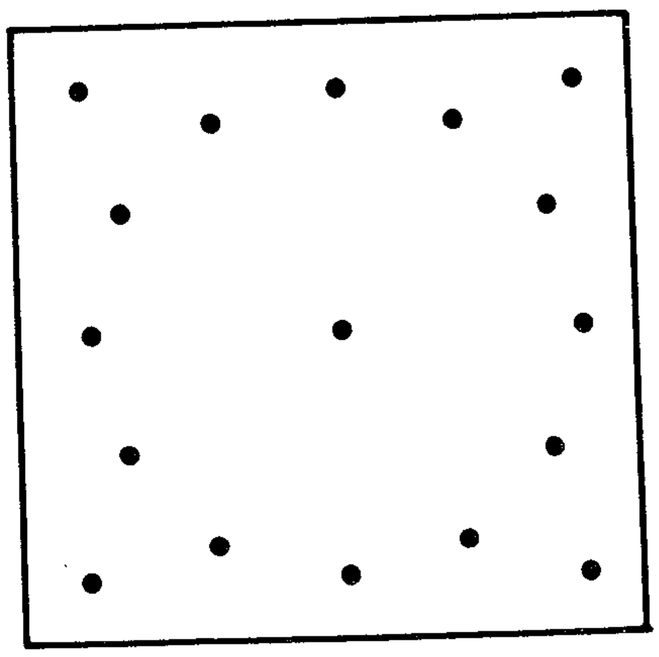


_____ degrees



_____ degrees

Draw an angle of 270° on this geoboard. Be sure to draw an arrow.



Geoboard