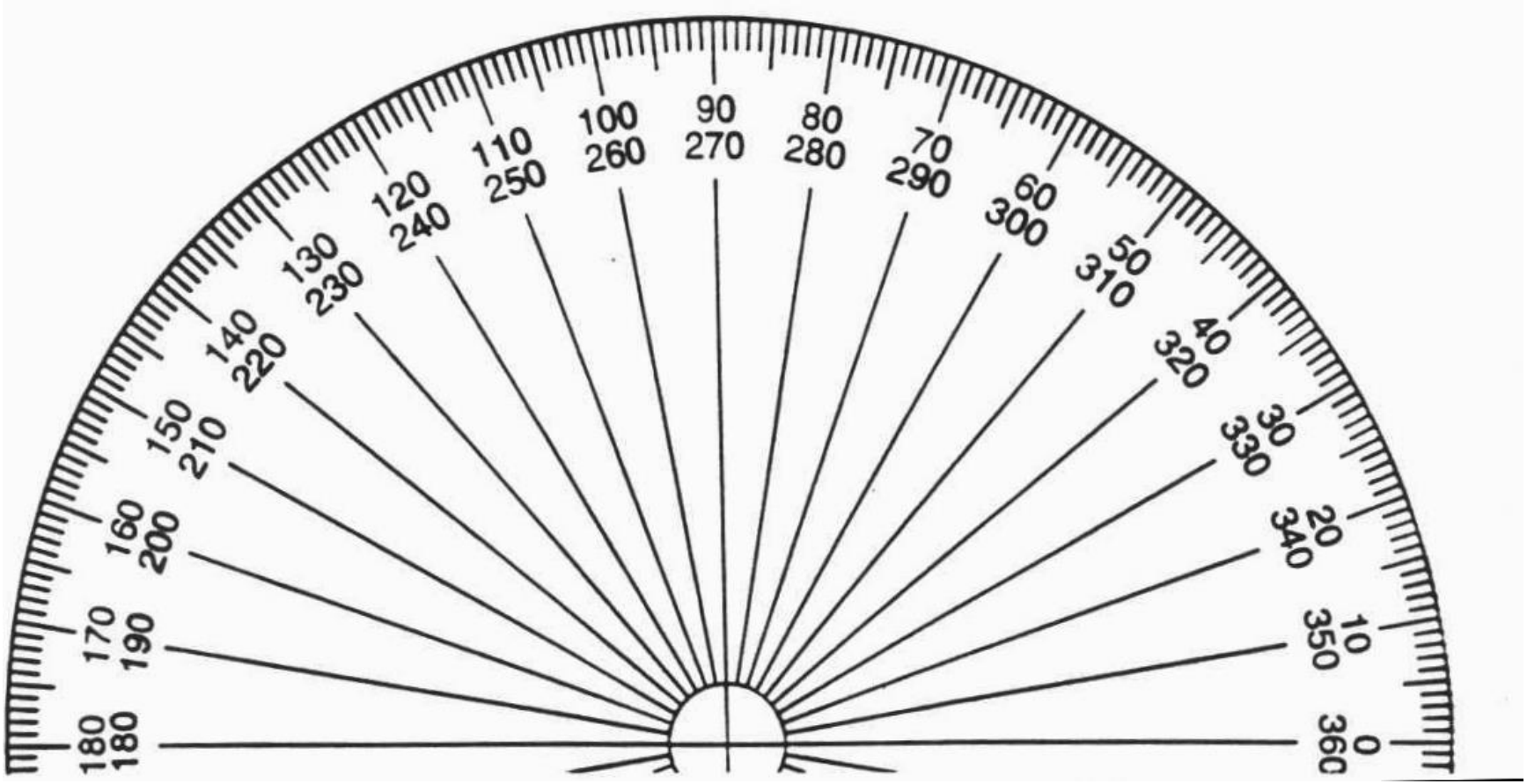
12.2

COMPLEMENTARY & SUPPLEMENTARY ANGLES

Measuring Angles

Angles are usually measured with the use of a PROTRACTOR

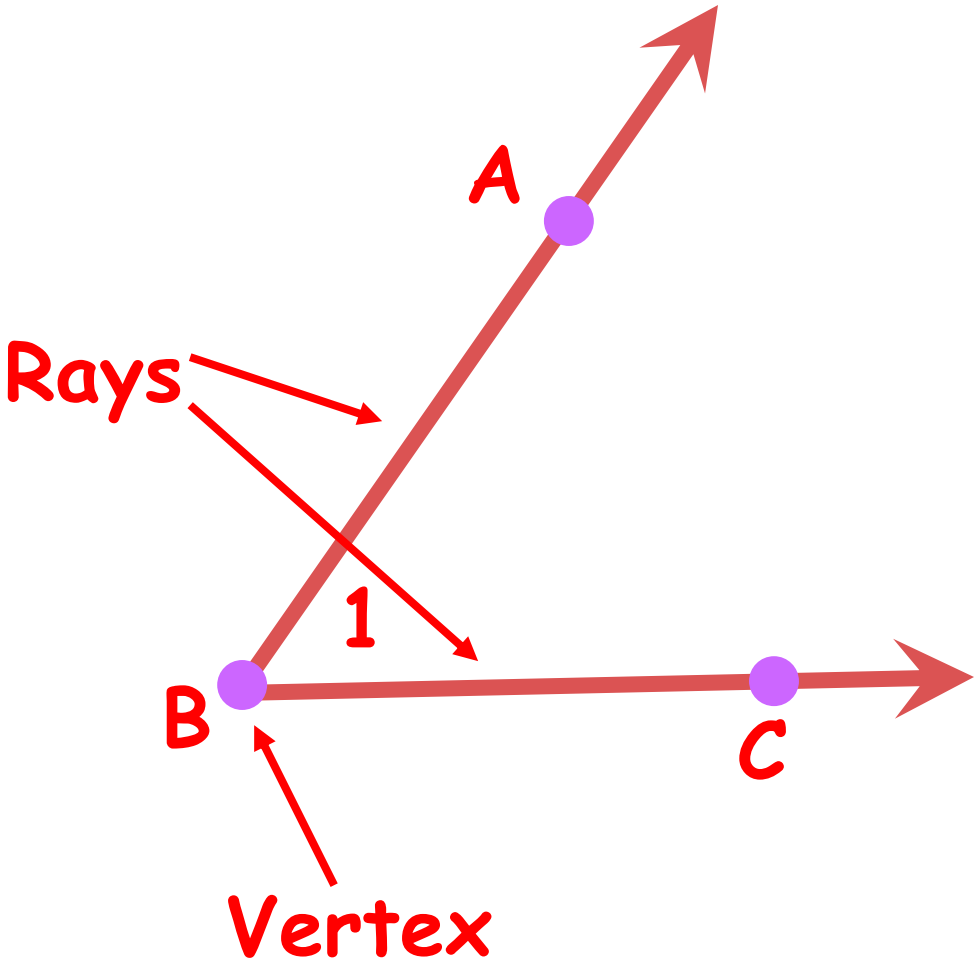


USING A PROTRACTOR TO DRAW AND MEASURE ANGLES

With your protractors, make the following angles:

1) 40°
2) 130°
3) 95°
4) 25°

Naming an Angle



$\angle ABC$

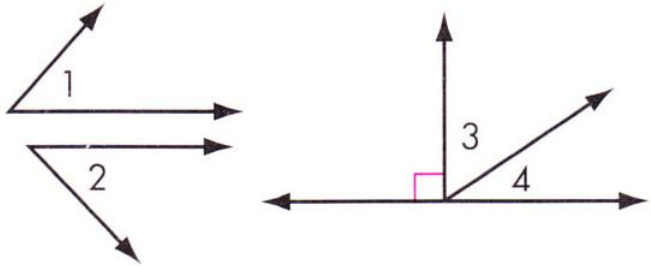
$\angle CBA$

$\angle B$

$\angle 1$

1) Define complementary angles

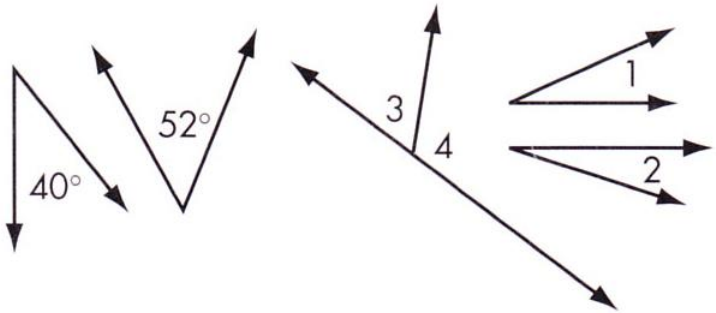
Pairs of complementary angles



$m\angle 1 + m\angle 2 = 90^\circ$

$m\angle 3 + m\angle 4 = 90^\circ$

Not pairs of complementary angles

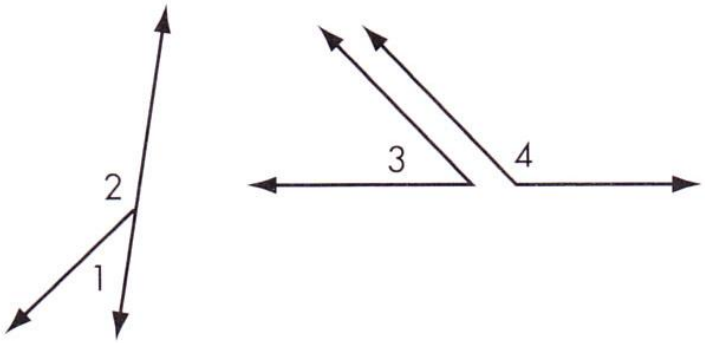


$m\angle 1 + m\angle 2 < 90^\circ$

Note: Sometimes it's convenient to name angles in a diagram with a number.

2) Define supplementary angles

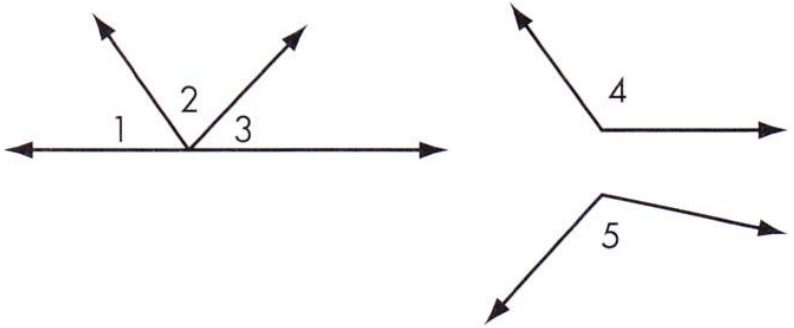
Pairs of supplementary angles



$m\angle 1 + m\angle 2 = 180^\circ$

$m\angle 3 + m\angle 4 = 180^\circ$

Not pairs of supplementary angles

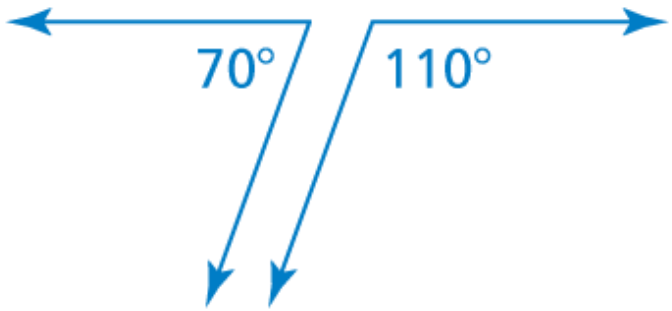


$m\angle 1 + m\angle 2 < 180^\circ$

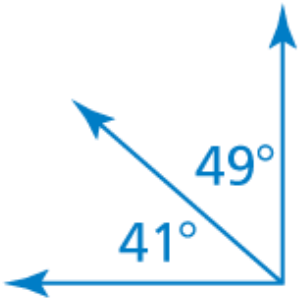
$m\angle 4 + m\angle 5 > 180^\circ$

Tell whether the angles are *complementary*, *supplementary*, or *neither*.

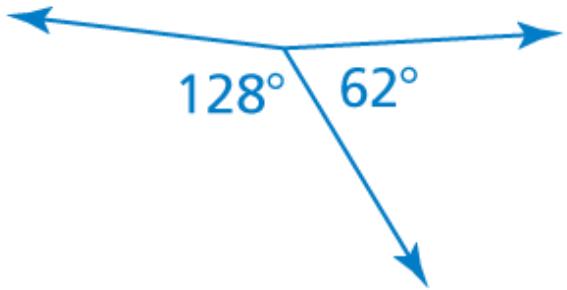
a.



b.

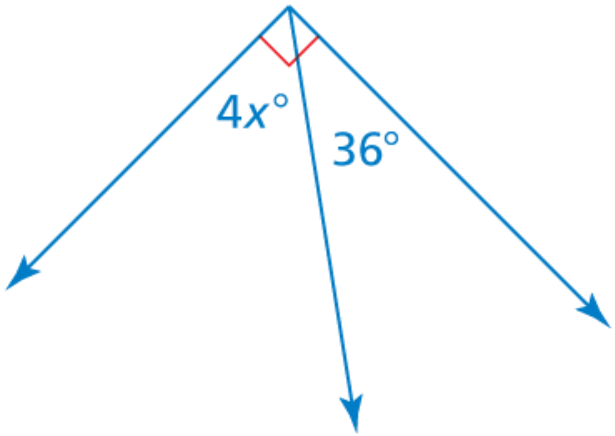


c.



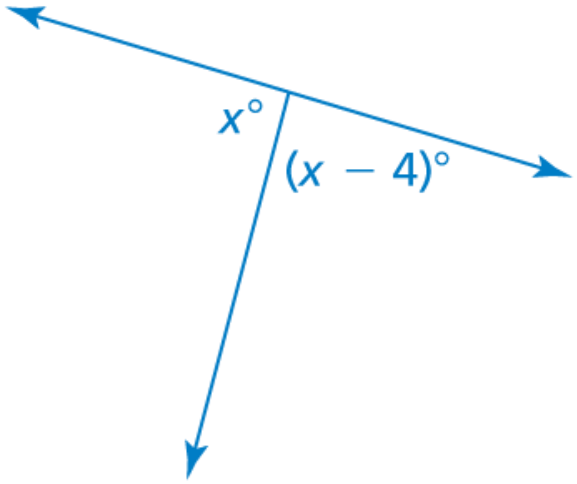
Tell whether the angles are *complementary* or *supplementary*. Then find the value of x.

a.



Tell whether the angles are *complementary* or *supplementary*. Then find the value of x.

b.

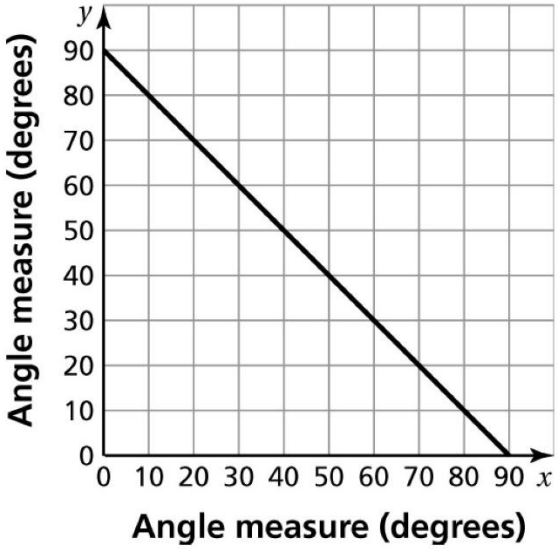


1 ACTIVITY: Complementary and Supplementary Angles

Work with a partner.

a. The graph represents the measures of *complementary angles*. Use the graph to complete the table.

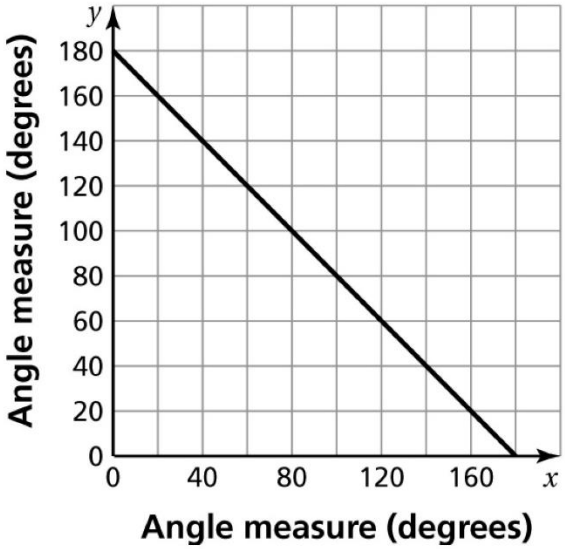
x		20°		30°	45°		75°
y	80°		65°	60°		40°	



b. How do you know when two angles are complementary? Explain.

c. The graph represents the measures of *supplementary angles*. Use the graph to complete the table.

x	20°		60°	90°		140°	
y		150°		90°	50°		30°



d. How do you know when two angles are supplementary? Explain.

2 ACTIVITY: Exploring Rules About Angles

Work with a partner. Complete each sentence with *always*, *sometimes*, or *never*.

a. If x and y are complementary angles, then both x and y are _____ acute.

b. If x and y are supplementary angles, then x is _____ acute.

c. If x is a right angle, then x is _____ acute.

d. If x and y are complementary angles, then x and y are _____ adjacent.

e. If x and y are supplementary angles, then x and y are _____ vertical.

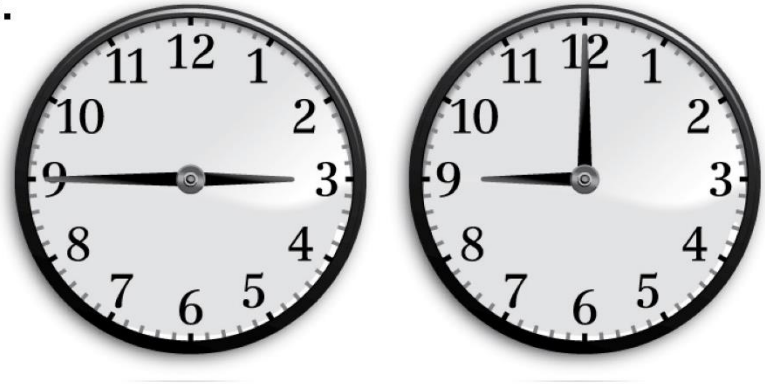
3 ACTIVITY: Classifying Pairs of Angles

Work with a partner. Tell whether the two angles shown on the clocks are *complementary*, *supplementary*, or *neither*. Explain your reasoning.

a.

b.

c.



d.