

(3) Division by 10 (pp. 31-32)

➤ Divide by 10.

➤ Use **base-10** material. Give your student 3 tens and ask her to divide them into 10 piles. She may try to trade in each ten for ones until she has 30 ones and then divide those up into 10 piles of 3 each. Tell her she can do it in steps. First trade in one ten, and divide the ten ones into 10 piles. Each will get one. Then do the same thing with the other two tens. How many tens came from each ten? The same number as the number of tens. Write

10 → 1 in each pile

10 → 1 in each pile

10 → 1 in each pile

30 → 3 in each pile

$30 \div 10 = 3$

$3 \div 1 = 3$

Now give her 3 hundreds and ask her to divide them into 10 piles. Tell her to do 1 hundred at a time. Write:

100 → 10 in each pile

100 → 10 in each pile

100 → 10 in each pile

300 → 30 in each pile

$300 \div 10 = 30$

$30 \div 1 = 30$

Give her 3 hundreds and 3 tens and ask her to divide them into 10 piles. Suggest that she first divide each hundred and each ten one after the other.

100 + 10 → 10 + 1 in each pile

100 + 10 → 10 + 1 in each pile

100 + 10 → 10 + 1 in each pile

330 → 33 in each pile

$330 \div 10 = 33$

$33 \div 1 = 33$

If a number ends in a 0, we can divide it by 10 by simply removing the 0, "sliding" the place value over one place.



Have your student do the following problems:

❖ $60 \div 10$

❖ $400 \div 10$

❖ $320 \div 10$

❖ $8930 \div 10$

❖ $4300 \div 10$

❖ $6000 \div 10$

❖ $23,980 \div 10$

❖ $29,100 \div 10$

❖ $15,000 \div 10$

❖ $30,000 \div 10$

❖ $100,000 \div 10$

Unit 5 Angles

Part 1 Measuring Angles

(1) Measuring Angles (pp. 74-75)



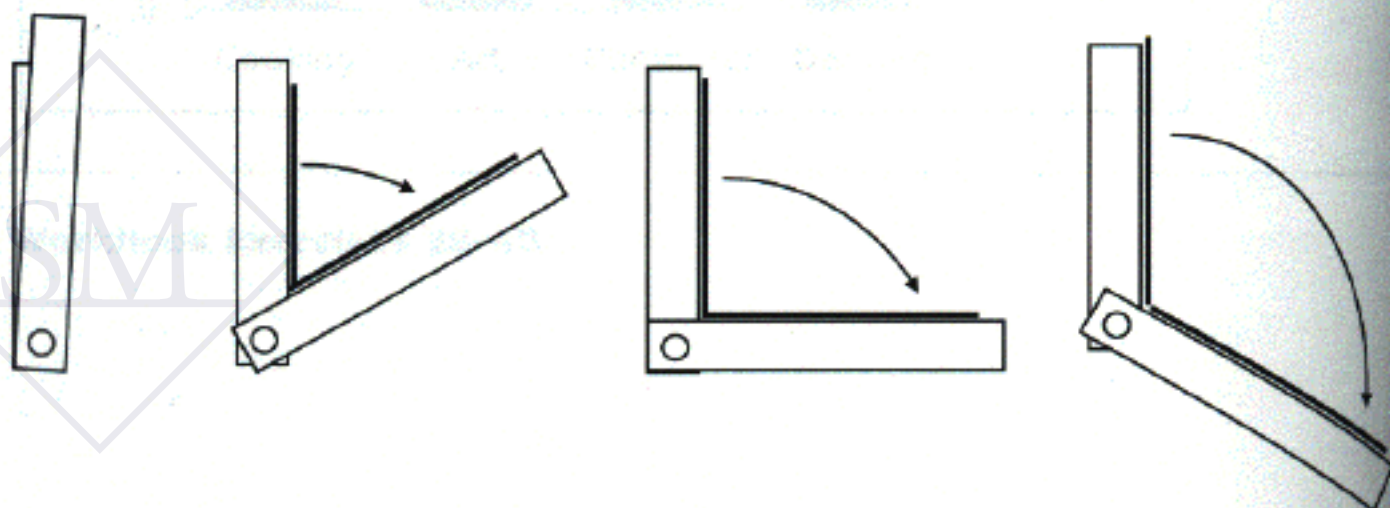
- Understand the use of degrees for measuring angles.
- Recognize right angles as 90° .
- Measure angles less than 180° with a protractor.



In *Primary Mathematics 3B*, students learned to recognize angles and classify them as right angles, greater than right angles, or less than right angles. Here, the student will learn to measure angles.

The degree is derived from the Babylonian base 60 system. They may have assigned 360 degrees to a circle because they found that it took about 360 days for the sun to complete one year's circuit across the sky. 360 is conveniently divisible by 2, 3, 4, 5, 6, 8, 9, 10, 12, 15, 18, and 20, so the degree is a nice unit to divide the circle into an equal number of parts. 180 degrees is $\frac{1}{2}$ of a circle, 120 degrees is $\frac{1}{3}$ of a circle, 90 degrees is $\frac{1}{4}$ of a circle, and so on.

- Use two strips of card board joined at one end with a brad. Open it and draw several angles along the inside edges at different amounts of turning. Remind your student that the size of an angle is related to the amount of turning of one strip relative to the other. The size of the arms on an angle is not important; an angle with short arms needs just as much turning of one strip relative to the other as an angle with longer arms.



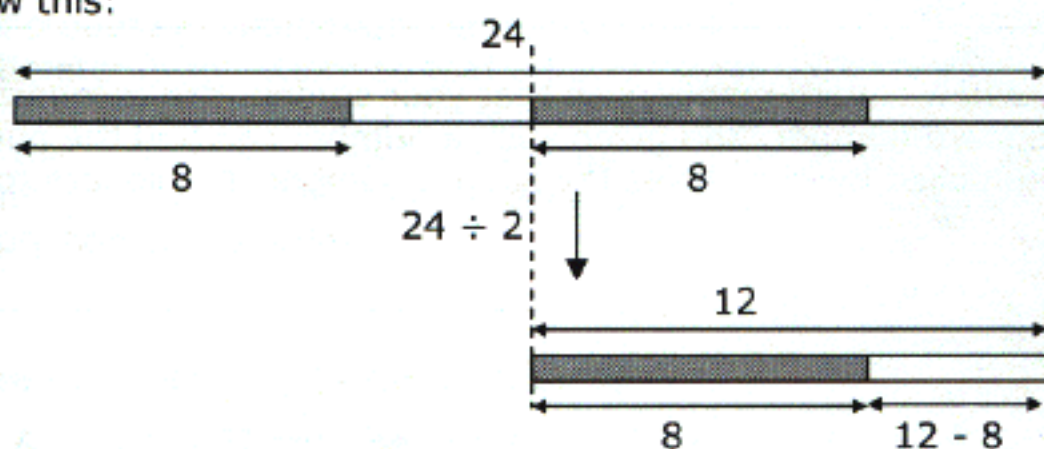


Learning Task 1, p. 85

Discuss different methods of finding one dimension given the perimeter and the other dimension.

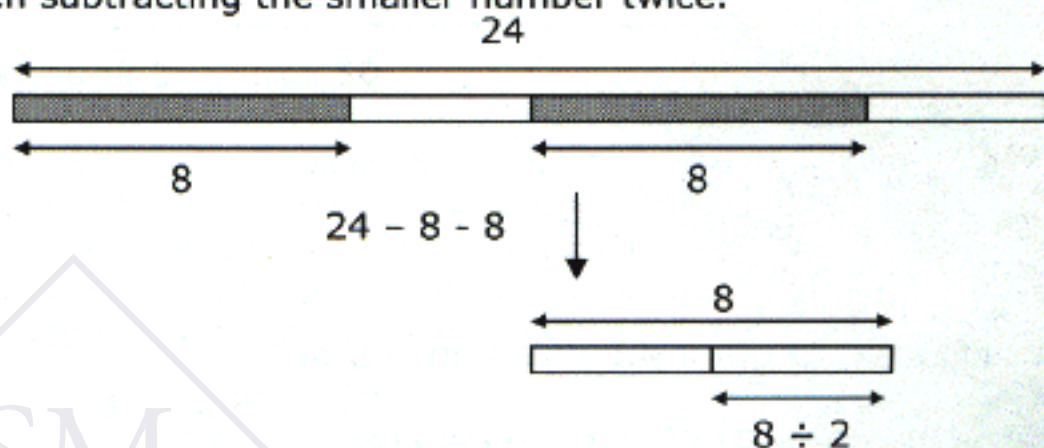
Method 1 Divide the perimeter into two: $24 \text{ m} \div 2 = 12 \text{ m}$
Subtract the length: $12 \text{ m} - 8 \text{ m} = 4 \text{ m}$

Dividing the perimeter in two gives the total for one width and length. If this is difficult for your student to conceive, tell him to pretend the rectangle is cut at one corner and the edges are straightened out. Draw a part-whole model to show this:



Method 2 Subtract the length twice from the perimeter:
 $24 \text{ m} - 8 \text{ m} - 8 \text{ m} = 16 \text{ m} - 8 \text{ m} = 8 \text{ m}$
Divide the answer by 2: $8 \text{ m} \div 2 = 4 \text{ m}$

This can also be illustrated with a part-whole model, if necessary. The length can also be doubled first and then subtracted, but mental computation is easier when subtracting the smaller number twice.



Provide other examples.