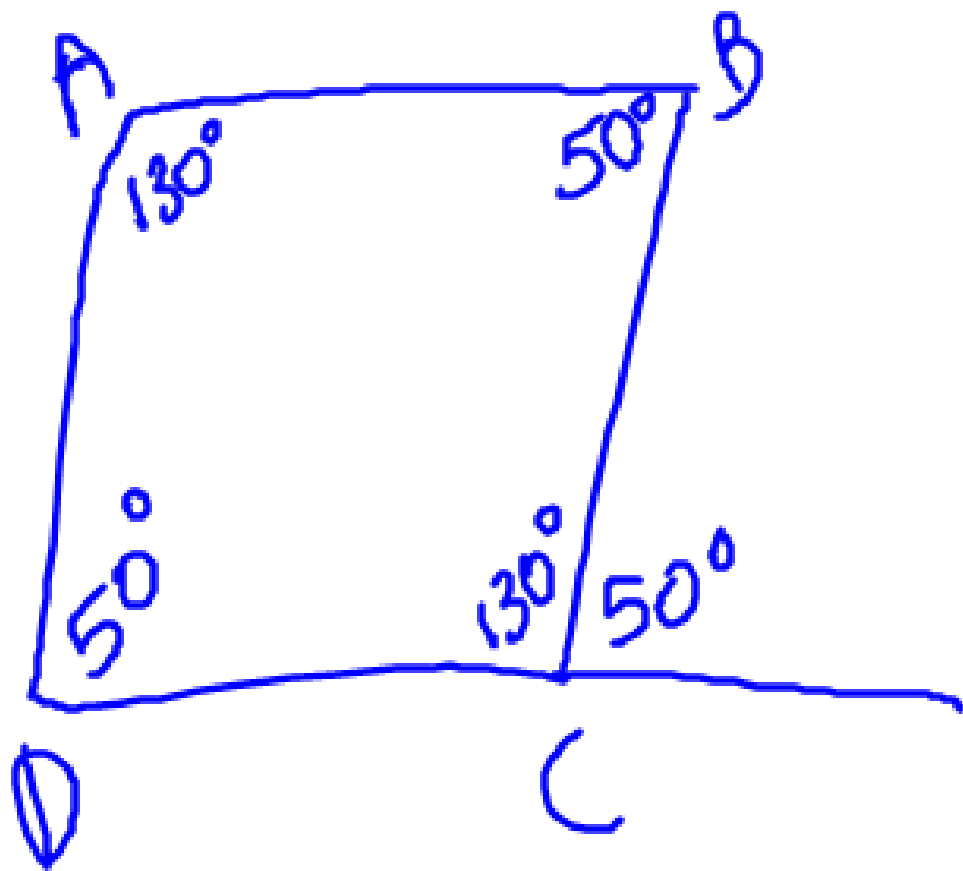
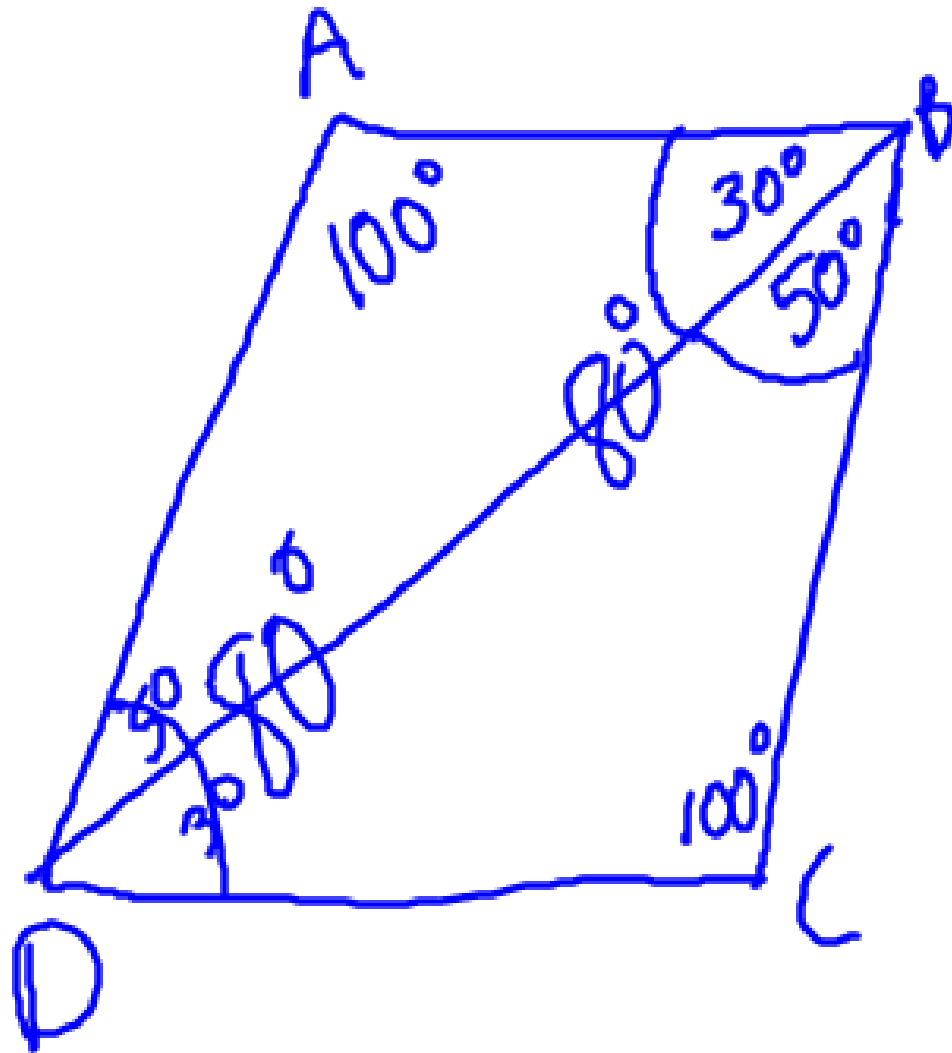


Parallelograms -



- Pairs of opposite sides are parallel.
- Pairs of opposite sides are congruent.
- Angles in opposite corners are congruent.
 $\angle A + C$ and $\angle B + D$ are congruent.
- The sum of measures of consecutive angles is 180° .
 $\angle A + B = 180^\circ$ $\angle B + C = 180^\circ$ $\angle C + D = 180^\circ$
 $\angle D + A = 180^\circ$

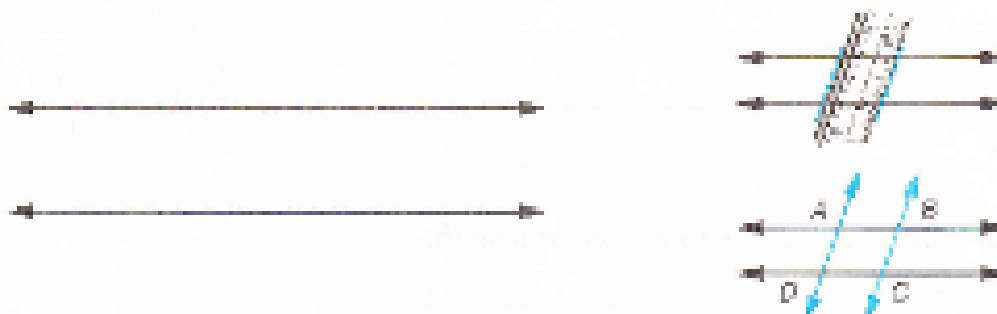




LESSON
5-10

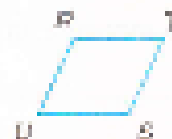
Properties of Parallelograms

1. The 2 lines below are parallel. Place a ruler so that it intersects the parallel lines. Draw 2 transversals by drawing a line along each of the longer sides of the ruler. These lines should be parallel. The 4 lines form a parallelogram. Label the parallelogram $ABCD$.



2. Use a compass to make sure that both pairs of opposite sides of your parallelogram are congruent.
3. Measure $\angle BAD$ with a protractor. Write the measure on your drawing.
4. Find the measures of the other 3 angles of the parallelogram without using a protractor. Write the measures on your drawing.
5. Check your answers by measuring the angles with a protractor.

6. a. Angles R and S in the parallelogram at the right are opposite each other. Name another pair of opposite angles in the parallelogram.



- b. What do you think is true about the opposite angles in a parallelogram?

7. a. Two angles of a polygon that are next to each other and called **consecutive angles**. Consecutive angles have a common side. Angles R and U in parallelogram $RUST$ are consecutive angles. Name 3 other pairs of consecutive angles in the parallelogram.

- b. What do you think is true about consecutive angles in a parallelogram?

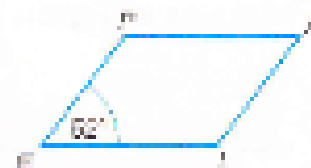
LESSON
5•10

Parallelogram Problems

All figures on this page are parallelograms. Do not use a ruler or protractor to solve the problems below.

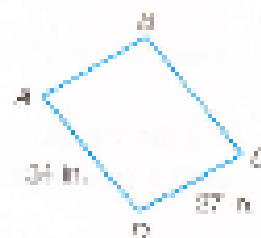


1. a. The measure of $\angle A$ is _____. Explain how you know.

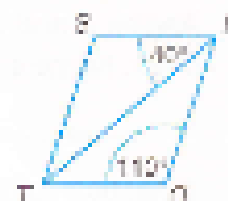


- b. The measure of $\angle L$ is _____. Explain how you know.

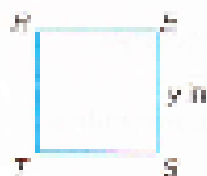
2. The length of \overline{AD} is _____. Explain how you know.



3. The measure of $\angle OPT$ is _____. Explain how you know.



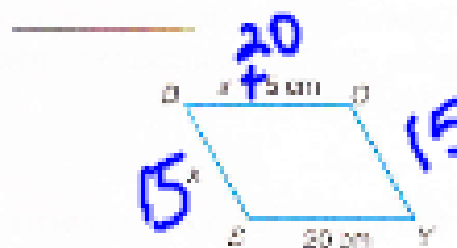
4. Quadrilateral $REST$ is a square.



- a. Measure of $\angle R$ = _____
- b. Length of \overline{ES} = _____
- c. Perimeter of square $REST$ = _____

90°
 $y = 4y$

5. What is the perimeter of parallelogram $BOYS$?
 Hint: First find the value of x .



LESSON
5-10
Parallelogram Problems *continued*

6. Construct a parallelogram using only a compass and a straightedge.
 Do this construction without referring to page 181 of the Student Reference Book.

Try This

7. Quadrilaterals $FAJR$ and $FARE$ are parallelograms. Without using a protractor, find the measure of the angles in parallelogram $FAJR$.

What is the measure of

$\angle JAF$? _____

$\angle AJR$? _____

$\angle JRF$? _____

$\angle RFA$? _____

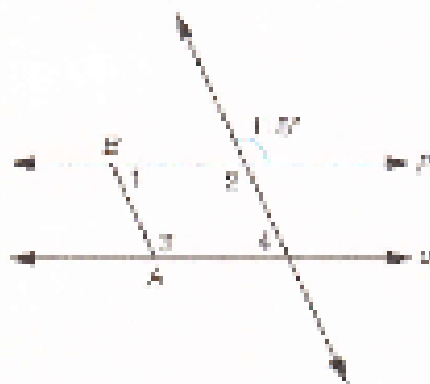


LESSON
5•10

Math Boxes



1. Without using a protractor, find the degree measure of each angle listed below.



Lines p and q are parallel.

$$m\angle 1 = \underline{\hspace{2cm}}$$

$$m\angle 2 = \underline{\hspace{2cm}}$$

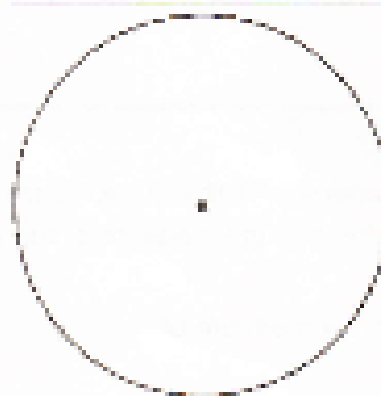
$$m\angle 3 = \underline{\hspace{2cm}}$$

$$m\angle 4 = \underline{\hspace{2cm}}$$



2. The advertising budget for a small company is shown in the table below. Complete the table. Then use a protractor to make a circle graph of the information. Title the graph.

Advertising Method	Amount of Money	Percent of Total	Degree Measure of Sector
Internet	\$12,500		
Television		25%	90°
Radio	\$10,750		
Magazines		45%	162°
Mailings	\$9,750		
TOTAL	\$125,000	100%	360°



3. Find the missing value that makes the number sentence true.

a. $\frac{1}{3} \cdot m = 10$ $m = \underline{\hspace{2cm}}$

b. $p \div 4 = 1.5$ $p = \underline{\hspace{2cm}}$

c. $5\frac{1}{5} + 1\frac{1}{2} = k$ $k = \underline{\hspace{2cm}}$

4. How many $\frac{3}{16}$ -inch segments are in a line segment that is $1\frac{1}{8}$ -inches long? Fill in the circle next to the best answer.

(A) 6

(B) $7\frac{1}{2}$

(C) 9

(D) 18



LESSON
5-11
Math Boxes


1. Find the missing value that makes the number sentence true.

a. $16 + n = 37$ $n =$ _____

b. $6 + (x - 2) = 10$ $x =$ _____

c. $6 = \left(\frac{b}{3}\right) + 6$ $b =$ _____

d. $7 - 4.5 = 5.5$ $7 =$ _____



2. Multiply or divide.

a. _____ $= 80 \div \frac{1}{4}$

b. $75 \div 5 =$ _____

c. $\frac{3}{5} \times 60 =$ _____

d. _____ $= (5 + 60) \div 6$



3. Make each sentence true by inserting parentheses.

a. $5 + 5 - 3 = \frac{6}{6} = 7$

b. $3 \times 9 - 5 + \frac{8}{2} = 28$

c. $36 \div 6 + 3 = 3^2 - 0$

d. $1\frac{3}{4} - \frac{1}{2} + \frac{5}{8} = 1\frac{7}{8}$

e. $3\frac{1}{2} - 1 + 1\frac{1}{4} = \frac{17}{4}$



4. Multiply. Write your answer in simplest form.

a. _____ $= \frac{3}{5} \times \frac{8}{5}$

b. _____ $= \frac{6}{9} \times \frac{4}{5}$

c. $4 \times 6\frac{3}{10} =$ _____

d. $2\frac{2}{3} \times 5\frac{1}{8} =$ _____

e. _____ $= \frac{8}{11} \times \frac{3}{6}$



Show
work

5. Draw a line segment that is 3 inches long.

How many $\frac{1}{2}$ inch segments are in 3 inches?



6. Compare using $<$, $>$, or $=$.

a. $4^2 + (6 \div 7)$ _____ $(4^2 + 6) \div 7$

b. $4.5 \div 3$ _____ $3 \div 4.5$

c. $48 \div (12 - 6)$ _____ $(48 \div 12) - 6$

d. $(25 + 3) \div 5$ _____ $25 \times \frac{3}{5}$



P200
202, 203
SL510