

CHAPTER 5: QUADRILATERALS

SECTION 5.1: PROPERTIES OF PARALLELOGRAMS

Standards:

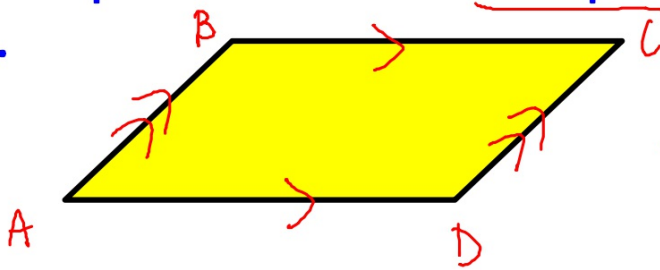
I2.0: Students find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.

WARM-UP

p. 163 # 3-33 (multiples of 3)

DEFINITION

Parallelogram: a quadrilateral with both pairs of opposite sides parallel.

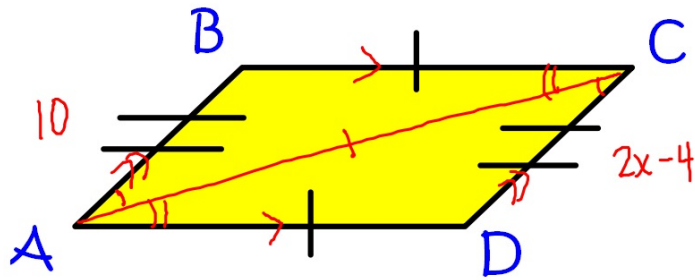


label : $\square ABCD$

~~ACBD~~

THEOREM

Opposite sides of a parallelogram are \cong *opp. sides of a \square are \cong*

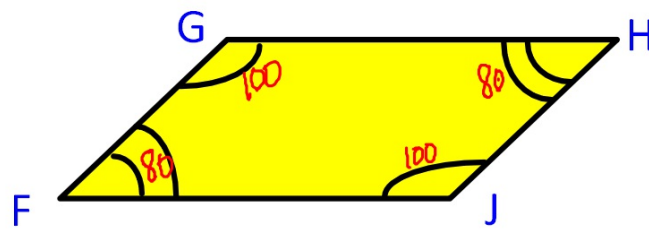


$$\overline{AB} \cong \overline{CD}$$

$$\overline{BC} \cong \overline{AD}$$

THEOREM

Opposite angles of a parallelogram are \cong

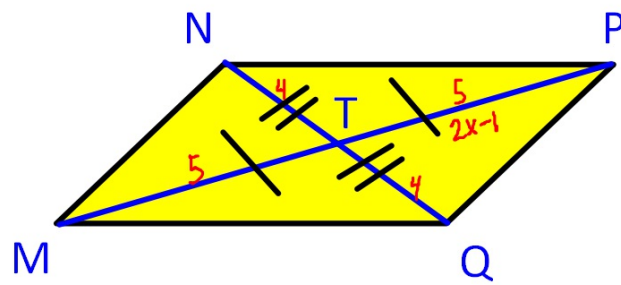


$$\angle G \cong \angle J$$

$$\angle F \cong \angle H$$

THEOREM

Diagonals of a parallelogram bisect each other



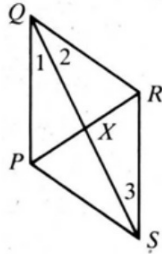
$$\overline{NT} \cong \overline{TQ}$$

$$\overline{MT} \cong \overline{TP}$$

$$2x - 1 = 5$$

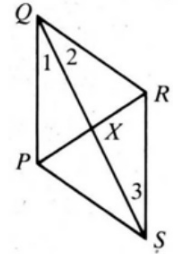
I-4: PQRS is a parallelogram. Complete.

1) If $PS = 5$, then $QR =$ _____



answer:

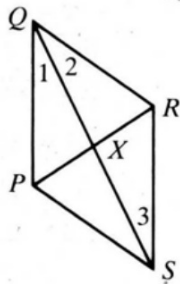
2) If $PR = 20$, then $PX =$ _____



answer:

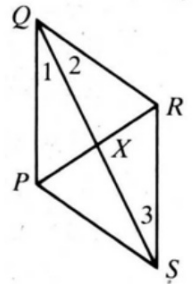
1-4: PQRS is a parallelogram. Complete.

3) If $m(\angle QPS) = 125$, then $m(\angle QRS) = \underline{\hspace{2cm}}$,
and $m(\angle PQR) = m(\angle PSR) = \underline{\hspace{2cm}}$



answer:

4) If $m(\angle 1) = 27$ and $m(\angle 2) = 30$, then
 $m(\angle 3) = \underline{\hspace{2cm}}$ and $m(\angle PSR) = \underline{\hspace{2cm}}$

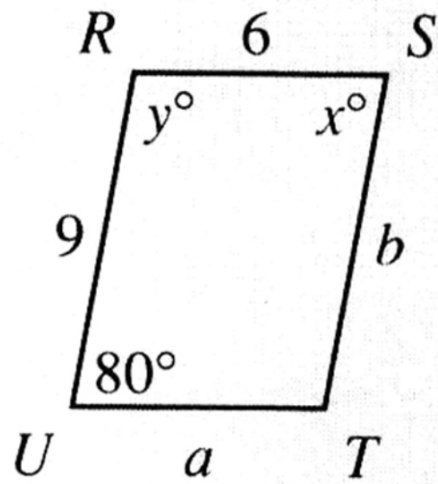


answer:



5-10: The quadrilateral is a parallelogram. Find the values of a , b , x , and y .

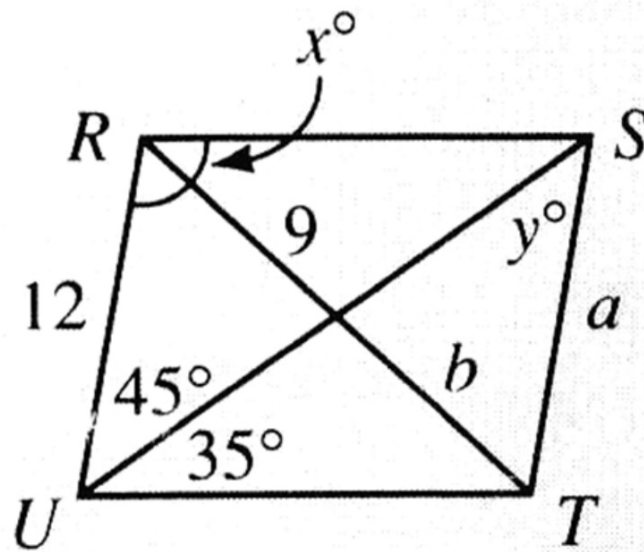
5)



answer:

5-10: The quadrilateral is a parallelogram. Find the values of a , b , x , and y .

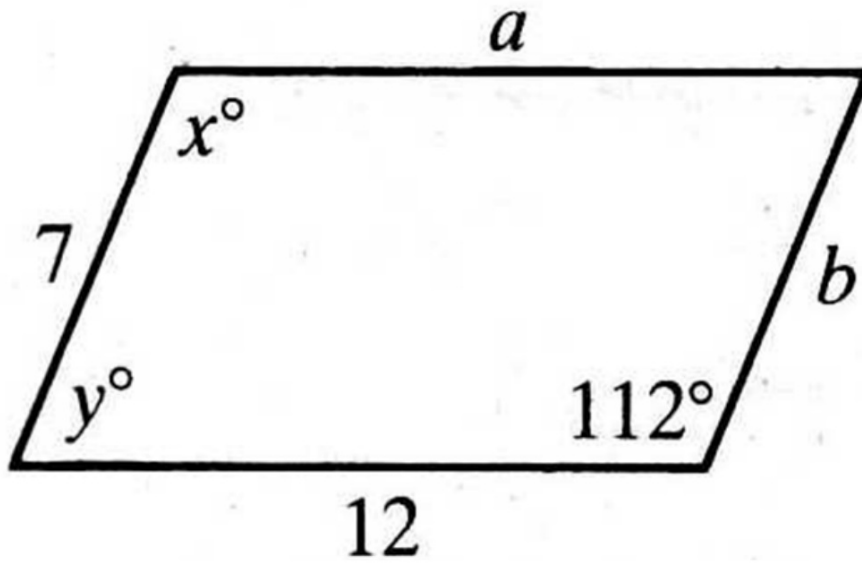
6)



answer:

5-10: The quadrilateral is a parallelogram. Find the values of a , b , x , and y .

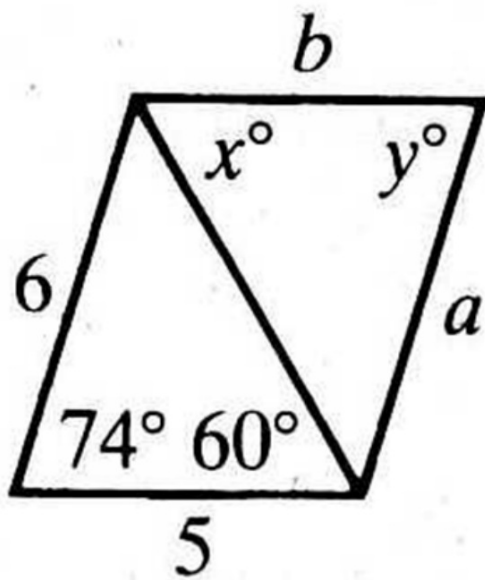
7)



answer:

5-10: The quadrilateral is a parallelogram. Find the values of a , b , x , and y .

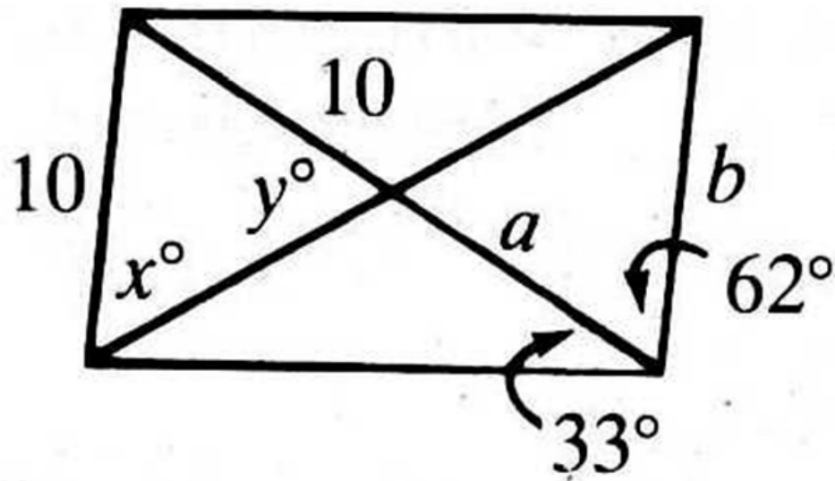
8)



answer:

5-10: The quadrilateral is a parallelogram. Find the values of a , b , x , and y .

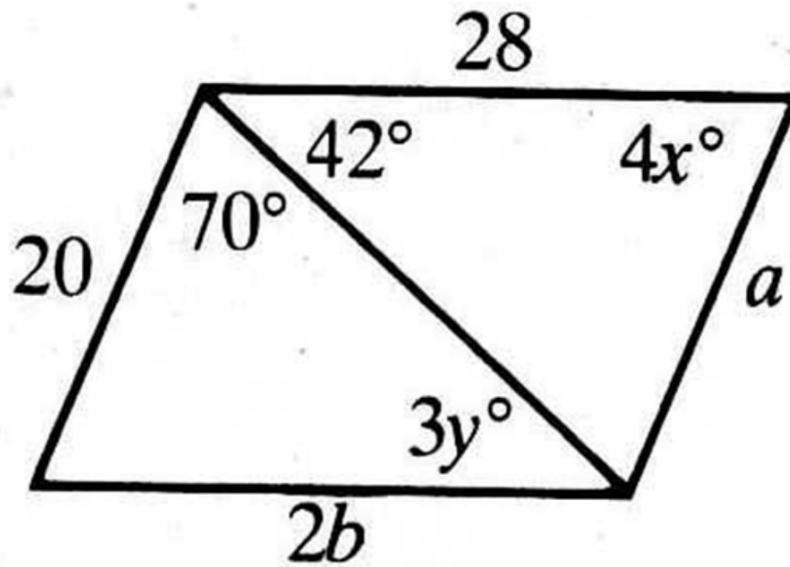
9)



answer:

5-10: The quadrilateral is a parallelogram. Find the values of a , b , x , and y .

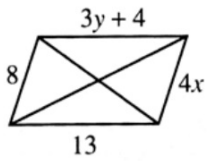
10)



answer:

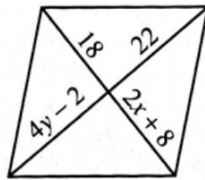
11-13: The figure is a parallelogram with its diagonals drawn. Find the values of x and y .

11)



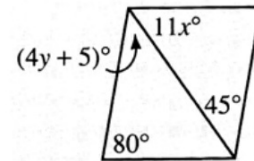
answer:

12)



answer:

13)



answer:

14) Find the perimeter of $\square PINE$ if $PI = 12$ and $IN = 8$.

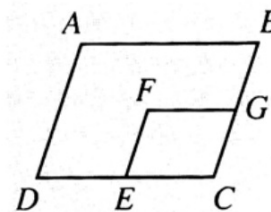
answer:

40

15) Do an outline for the following proof:

Given: $ABCD$ is a \square ; $CEFG$ is a \square

Prove: $\angle A \cong \angle F$



answer:

$$\angle A \cong \angle C$$

$$\angle F \cong \angle C$$

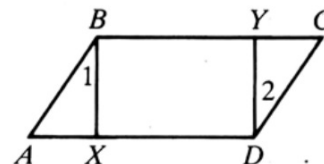
$$\angle A \cong \angle F$$

16) Complete the proof.

Given: $\square ABCD$; $\angle 1 \cong \angle 2$

Prove: $\overline{AX} \cong \overline{YC}$

Proof:



STATEMENTS	REASONS
1) ●	1) ●
2) ●	2) ●
3) ●	3) ●
4) ●	4) ●
5) ●	5) ●

T or F:

1. Every parallelogram is a quadrilateral.



True or False

2. Every quadrilateral is a parallelogram.



True or False

3. All angles of a parallelogram are \cong



True or False

4. All sides of a parallelogram are \cong



T or F

5. In $\square RSTU$, $\overline{RS} \parallel \overline{TU}$.



T or F

6. In $\square ABCD$, if $m \angle A = 50$, then $m \angle C = 130$.



T or F

7. In $\square XWYZ$, $\overline{XY} \cong \overline{WZ}$



answer:

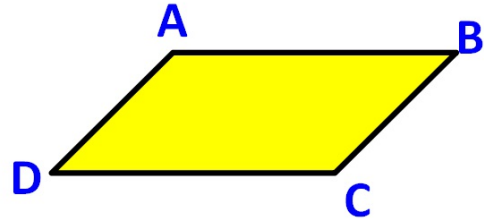
T or F

8. In $\square ABCD$, \overline{AC} and \overline{BD} bisect each other



Given:  ABCD

Prove: $\overline{AB} \cong \overline{CD}$; $\overline{BC} \cong \overline{AD}$



1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.

HOMEWORK

Assignment #5.1

- Pages 169-170 #5-12, 19-28