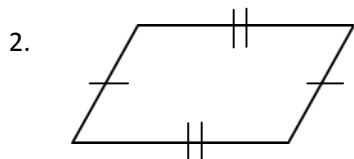For each diagram below, write the statement that describes the parallelogram property as well as the converse of that statement. The first statement was written to give you an example to follow.
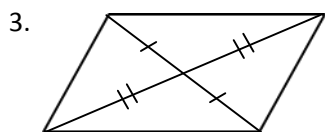
1.
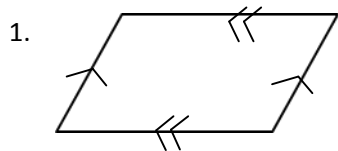
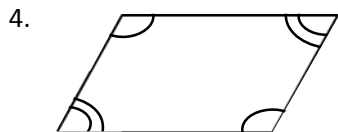Statement: parallelogram → both pairs of opposite sides are parallel

Converse: _____

2.

Statement: _____
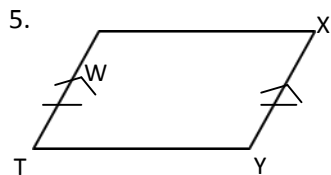
Converse: _____

3.

Statement: _____

Converse: _____

4.

Statement: _____

Converse: _____

Now, consider the information in the diagram below. Would it be true if you knew the shape was a parallelogram?
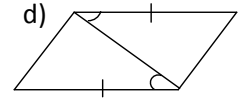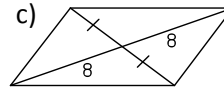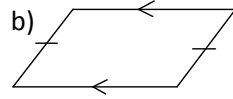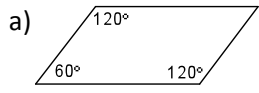
5.

Given: $TW \parallel YX$; $TW \cong YX$

Prove: TWXY is a parallelogram

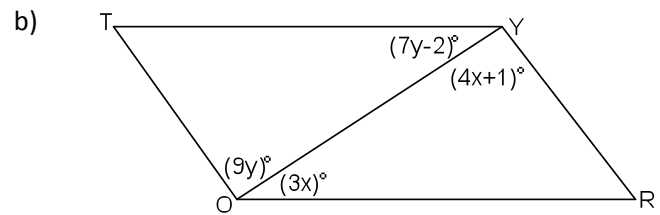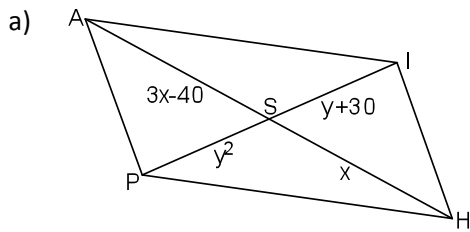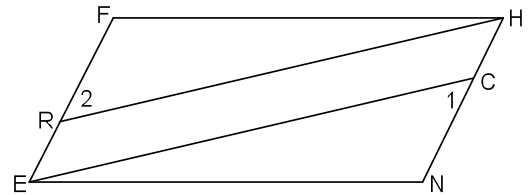| Statements	Reasons

If one pair of sides is **BOTH** _____.

Example 1: Use the given information to determine which must be a parallelogram. Write the converse that

justifies your answer.

a)

120°
60°   120°

b)

c)

8
8

d)

Example 2: Find the values of x and y that make each quadrilateral a parallelogram.

a)

A

I

3x-40

S

y+30

y²

X

P

H

b)

T

Y

(7y-2)°

(4x+1)°

(9y)°

(3x)°

O

R

Example 3:   Given: Parallelogram FENH; $ER \cong HC$

Prove: RECH is a parallelogram

F

H

2

R

1

C

E

N

Statements	Reasons