11.2 Notes "Reasoning & Parallel Lines"

AND

11.3 Notes "Interior Angles of Triangles"
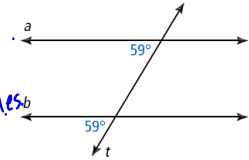
Intro

The symbol ‖ means "is parallel to." If line *m* is parallel to line *n*, you write *m* ‖ *n* .

↑
parallel

Example
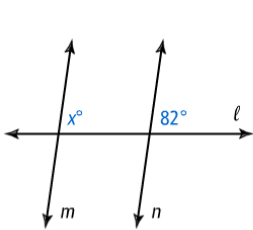
Can you conclude that *a* ‖ *b* ? Justify your reasoning.

Yes, a‖b
because there are
equal corresponding angles

a
59°
b
59°
t

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2. Complete Example #1.

Got It?

For which value of *x* is line *m* parallel to line *n*?

x°   82°   *ℓ*

m   *n*

X= 82°
corresponding ∠'s

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3. Discuss the Example 2 INTRO.

Intro

The reasoning that you use to decide whether two lines are parallel based on knowing whether corresponding angles or alternate interior angles are congruent is called deductive reasoning. **Deductive reasoning** is a process of reasoning logically from given facts to a conclusion.

4. Complete Example #2.

Got It?

For which value of *x* is line *m* parallel to line *n*?

X=76°
Alt.Int.∠'s

x°
76°
m   *n*

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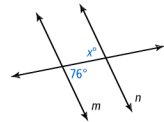
5. Help your teacher complete the Example 3
   Activity.....

Example

Which congruence statements justify *a* ‖ *b* or *c* ‖ *d* ?

1 2	3 4	*a*
5 6	7 8	
9 10	11 12	*b*
13 14	15 16	

c   *d*
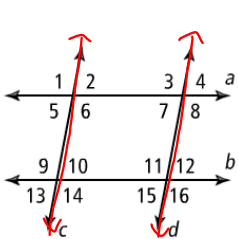
a ‖ b
∠7=∠15
∠6=∠14
∠3=∠11
∠5=∠10
∠8=∠11

c ‖ d
∠8=∠6
∠1=∠3
∠9=∠11
∠15=∠10
∠2=∠7

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6. Complete Example #3

Got It?

Which lines, if any, are parallel?

93°   *p*
93°

92°   *q*

m   *n*
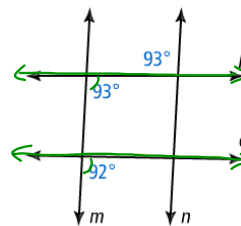
p‖q ~~(crossed out)~~   m‖n
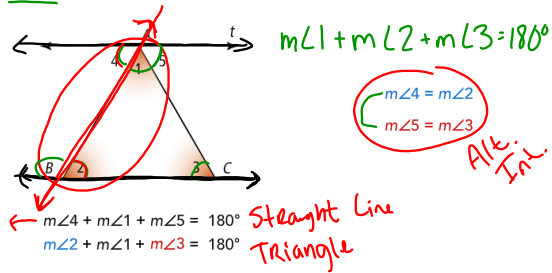q   q
Alt Int.

11.3 Notes "Interior Angles of Triangles"

1. **Study the Intro below...**

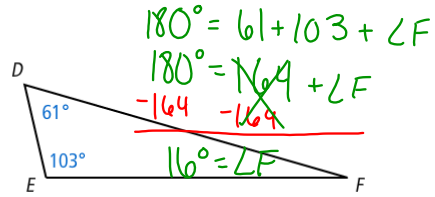The sum of the measures of the interior angles of a triangle is 180°.

$$m\angle 1 + m\angle 2 + m\angle 3 = 180°$$

$m\angle 4 = m\angle 2$
$m\angle 5 = m\angle 3$

Alt. Int.

← $m\angle 4 + m\angle 1 + m\angle 5 = 180°$ Straight Line
$m\angle 2 + m\angle 1 + m\angle 3 = 180°$ Triangle

2. **Complete Example #1**

Got It?

What is $m\angle F$? $= 16°$

61°
103°

$$180° = 61 + 103 + \angle F$$
$$180° = 164 + \angle F$$
$$-164 \qquad -164$$
$$16° = \angle F$$

3. **Complete Example #2.**

Got It?   small

The measure of one of the acute angles in a right triangle is 42.4°.
What is the measure of the other acute angle?

42.4°

$$180° = 42.4° + 90° + x$$

$$180° = 132.4° + x$$
$$-132.4° \quad -132.4°$$
$$47.6° = x$$