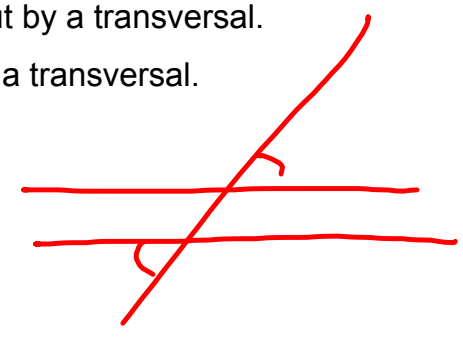
April 17, 2017

11-3 Parallel lines and Transversals

Objectives:

- I can identify types of angles on two parallel lines cut by a transversal.
- I can find missing angles of two parallel lines cut by a transversal.



- Same
- add to 180°

Vocabulary

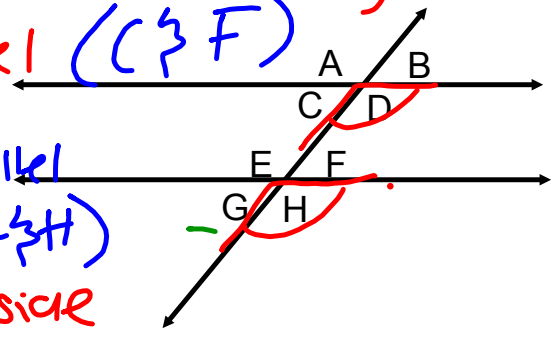
S Vertical Angle: opposite sides of "X" (B ≅ C)

180 Adjacent Angle: next to each other (A ≅ C)

S Alternate Interior: opposite side, inside parallel (C ≅ F)

S Alternate Exterior: opposite side, outside parallel (A ≅ H)

S Corresponding: same side, 1 inside, 1 outside



Parallel lines:

lines that never touch

Transversal:

line cuts through parallel

Given the following transversal, which of the following are

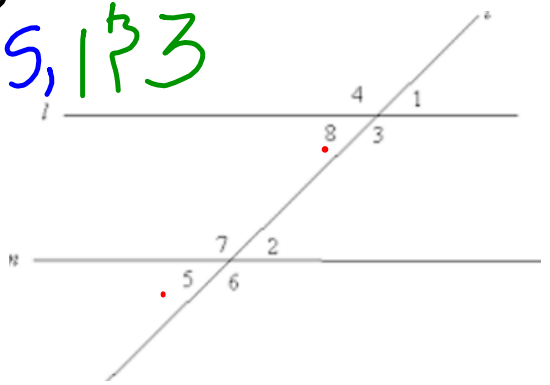
Vertical Angles: $\angle 4 \cong \angle 3, \angle 2 \cong \angle 5, \angle 7 \cong \angle 6, \angle 1 \cong \angle 8$

Adjacent Angles: $\angle 8$ & $\angle 4$, $\angle 2$ & $\angle 6$, $\angle 7$ & $\angle 5$, $\angle 1$ & $\angle 3$

Alternate Interior Angles: $\angle 8 \cong \angle 2$, $\angle 7 \cong \angle 3$

Alternate Exterior Angles: $\angle 4 \cong \angle 6$, $\angle 1$, $\angle 5$

Corresponding Angles: $\angle 8 \cong \angle 5$, $\angle 3 \cong \angle 6$, $\angle 7 \cong \angle 4$, $\angle 2 \cong \angle 1$



Given the measurement of one angle, find the measure of ALL other angles.

∠1 115°

∠2 65°

∠3 115°

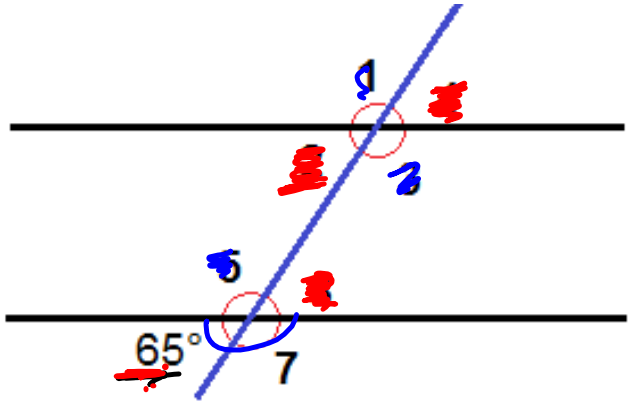
∠4 65°

∠5 115°

~~∠6~~

∠7 115°

∠8 65°



Given the measurement of one angle, find the measure of ALL other angles.

∠1 110°

∠2 70°

∠3 110°

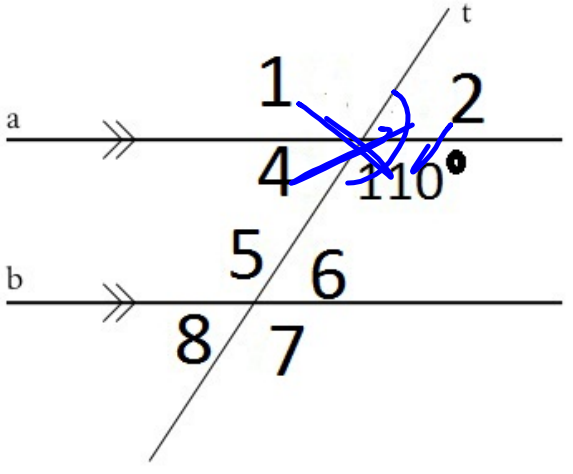
∠4 70°

∠5 110°

∠6 70°

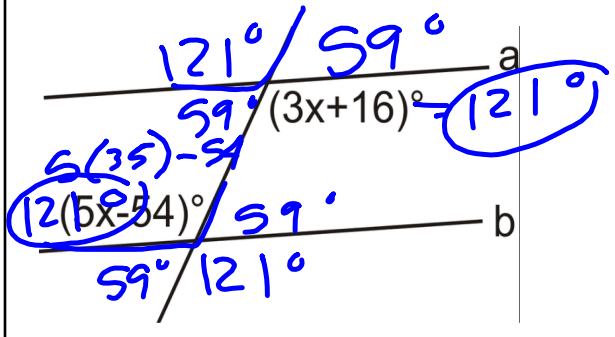
∠7 110°

∠8 70°



State the angle relationship and solve for x. Then find all other angle measures

a.



alternate interior

$5x-54=3x+16$

$-3x \quad -3x$

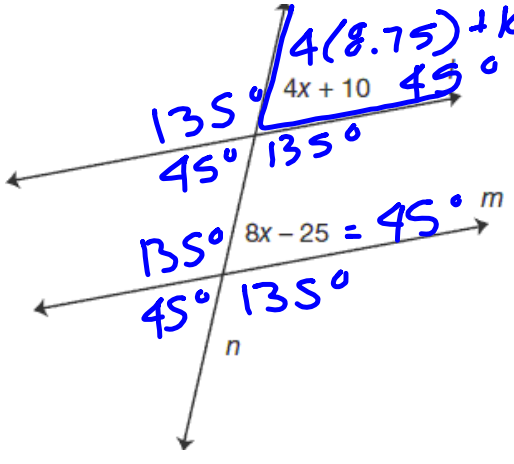
$2x-54=16$

$+54 \quad +54$

$\frac{2x}{2}=\frac{70}{2}$

$x=35$

b.



corresponding

$4x+10=8x-25$

$-4x \quad -4x$

$10=4x-25$

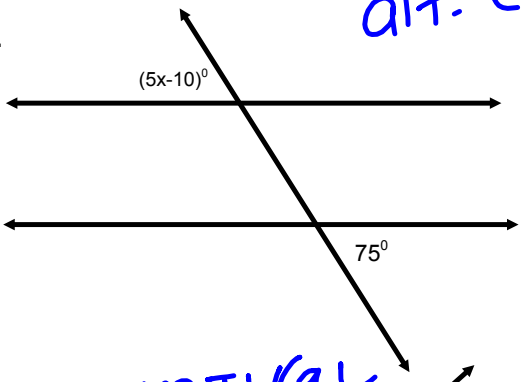
$+25 \quad +25$

$\frac{35}{4}=\frac{4x}{4}$

$x=8.75$!

State the angle relationship and solve for x. Then find all other angle measures

a.



alt. ext.

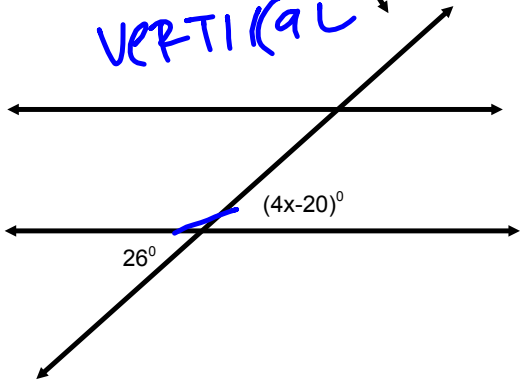
$5x-10 = 75$

$+10 \quad +10$

$\frac{5x}{5} = \frac{85}{5}$

$x = 17$

b.



VERTICAL

$4x-20 = 26$

$+20 \quad +20$

$4x = 46$

$x = 11.5$