DO NOW
Find the values of x and y

$3(47)-8$
133

$3x - 8$
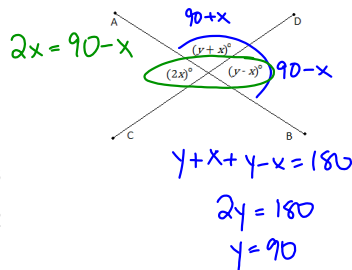
x 47

y

133
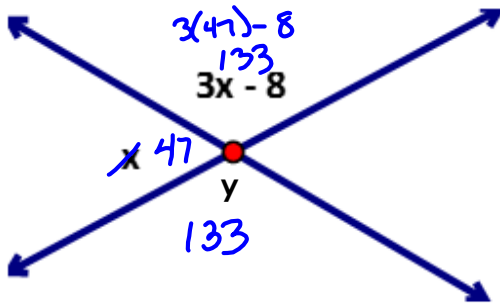
$3x-8+x=180$

$4x = 188$

$\boxed{x = 47}$

$\boxed{y = 133}$

Sep 30-10:30 AM

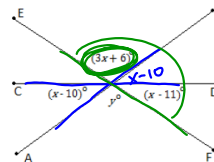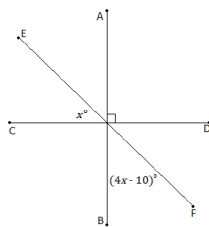
HW Answers

1. x = 80
2. x = 30 ; y = 90
3. x = 20
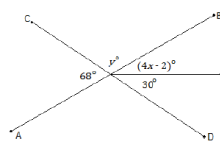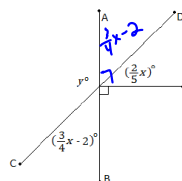4. x = 39 ; y = 123
5. x = 80 ; y = 122
6. x = 10 ; y = 112

$90+x$

$2x = 90-x$

$(y+x)^\circ$

$(2x)^\circ$ $(y-x)^\circ$ $90-x$

$y+x+y-x=180$

$2y = 180$

$y = 90$

$3x-6+x-10+x-11=180$

$x = 39$

$(3x+6)$ $x-10$

$(x-10)^\circ$ y° $(x-11)$

$\frac{3}{4}x-2+\frac{2}{5}x=90$

$\frac{3}{4}x-2$

$(\frac{2}{5}x)^\circ$

$(\frac{3}{4}x-2)^\circ$
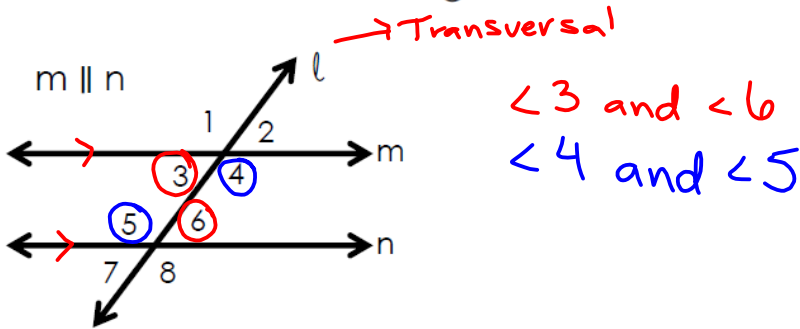
68° $(4x-2)^\circ$ 30°

Sep 15-1:10 PM

1

Alternate Interior Angles Theorem

If two parallel lines are cut by a transversal, then the pairs of alternate interior angles (**angles that lie between the two lines and on opposite sides of the transversal**) are <u>congruent.</u>
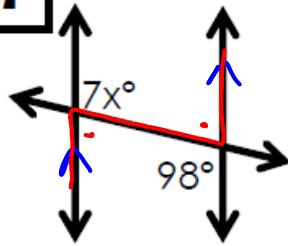
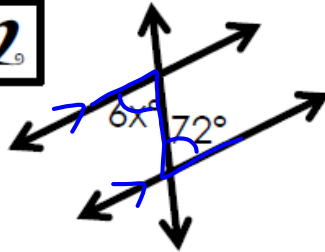Parallel Lines Cut by a Transversal

Alternate Interior Angles Theorem

→ Transversal

m ∥ n

< 3 and < 6
< 4 and < 5

Sep 15-1:05 PM

Ex. 1

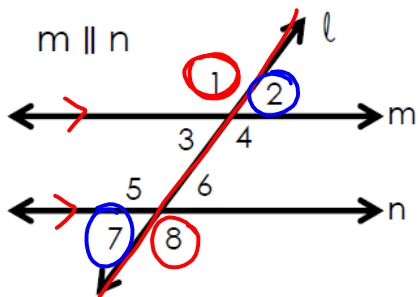7x°

98°

7x = 98

x = 14

Ex. 2

6x   72°

6x = 72

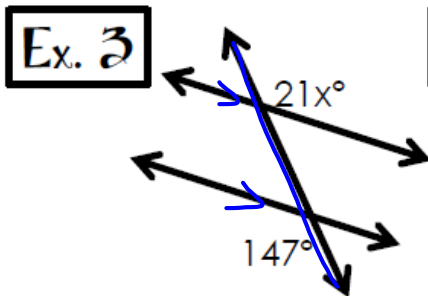x = 12

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Alternate Exterior Angles Theorem

If two parallel lines are cut by a transversal, then the pairs of alternate exterior angles (**angles that lie outside the two lines and on opposite sides of the transversal**) are <u>congruent</u>.
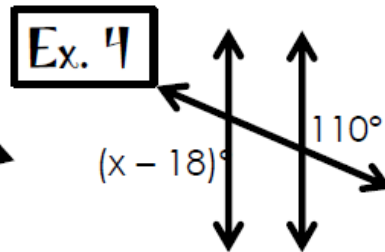
Alternate Exterior Angles Theorem

$m \parallel n$

∠1 and ∠8

∠2 and ∠7

Sep 15-1:06 PM

Ex. 3

$21x°$

$147°$

$21x = 147$

$$x = 7$$

Ex. 4

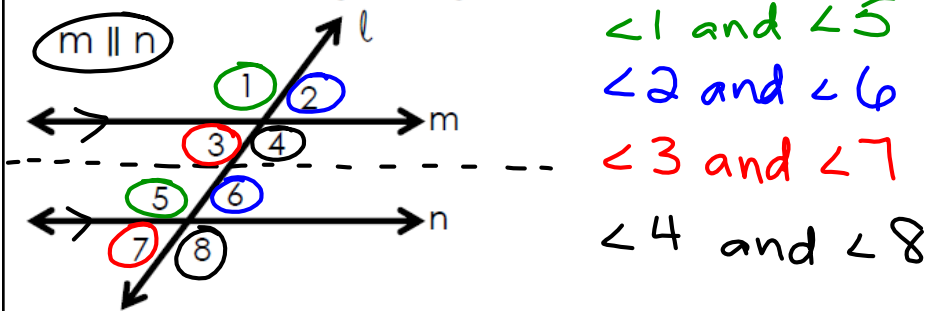$110°$

$(x − 18)°$

$x − 18 = 110$
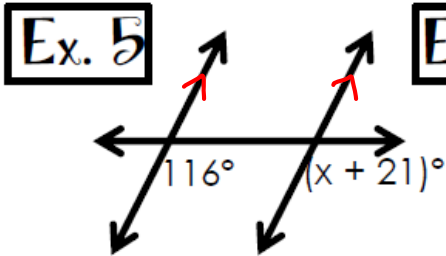
$$x = 128$$

Sep 15-1:06 PM

3

Corresponding Angles Postulate

If two parallel lines are cut by a transversal, then the pairs of corresponding angles (**angles that have corresponding positions**) are congruent.
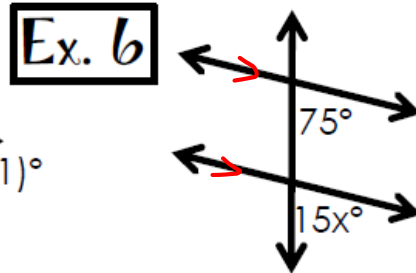
Corresponding Angles Postulate

$\angle 1$ and $\angle 5$
$\angle 2$ and $\angle 6$
$\angle 3$ and $\angle 7$
$\angle 4$ and $\angle 8$

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Ex. 5

$116°$ $(x + 21)°$

$x + 21 = 116$

$\boxed{x = 105}$
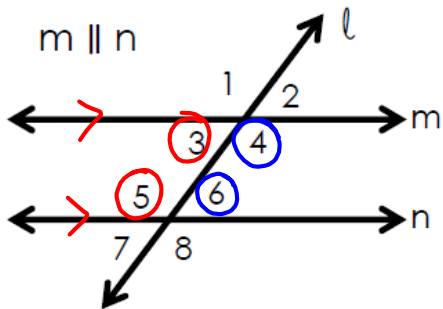
Ex. 6

$75°$
$15x°$

$15x = 75$

$\boxed{x = 5}$

Sep 15-1:07 PM

4

Consecutive Interior Angles Theorem

If two parallel lines are cut by a transversal, then the pairs of consecutive interior angles (**angles that lie between the two lines and are on the <u>same side</u> <u>of the transversal</u>**) are <u>supplementary</u>.
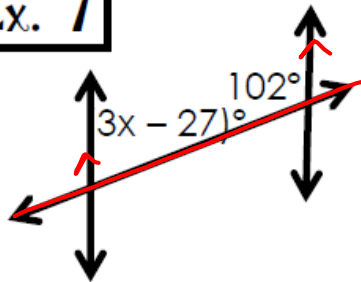
Consecutive Interior Angles Theorem

m ∥ n

<3 and <5

<4 and <6

Sep 15-1:07 PM

Ex. 7

$102°$

$(3x - 27)°$

$3x - 27 + 102 = 180$

$3x + 75 = 180$

$3x = 105$

$\boxed{x = 35}$
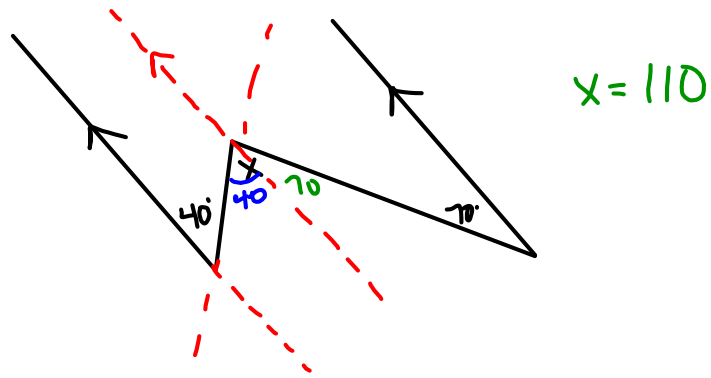
Ex. 8

$116°$
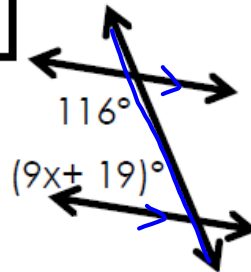
$(9x + 19)°$

$116 + 9x + 19 = 180$
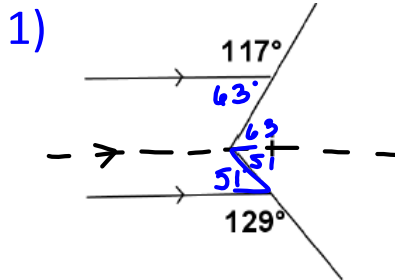
$9x + 135 = 180$

$9x = 45$

$\boxed{x = 5}$

Sep 15-1:07 PM

An ***auxiliary line*** is sometimes useful when solving for unknown angles.

40°   40   70   70°

$x = 110$

Sep 7-1:03 PM

1)
117°
63°
63
51
51
129°

$i = 114°$

2)
18
162°   h
98°

Sep 7-1:06 PM

6