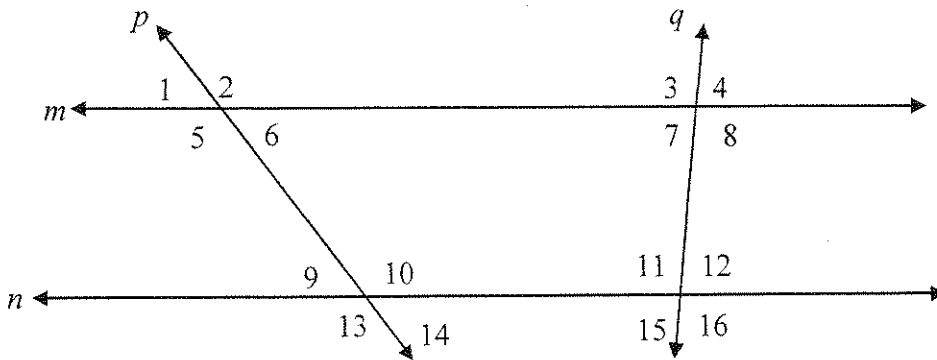# DO NOW

Given $m \parallel n$ with transversals p and q, identify the relationship between the two indicated angle:

1) $\angle 1$ and $\angle 5$

2) $\angle 3$ and $\angle 8$

3) $\angle 2$ and $\angle 10$

4) $\angle 7$ and $\angle 12$

5) $\angle 1$ and $\angle 14$

6) $\angle 5$ and $\angle 9$

7) $\angle 3$ and $\angle 15$
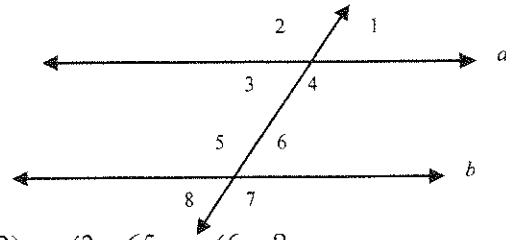
8) $\angle 2$ and $\angle 13$

9) $\angle 6$ and $\angle 9$

10) $\angle 3$ and $\angle 11$

Name _____

Math 3

What are the Parallel Line Theorems?

#1-8: *Using the figure at the right,*
find the measure *of the angle if a // b :*

1) $m\angle 1 = 45$, $m\angle 6 = ?$

2) $m\angle 3 = 65$, $m\angle 6 = ?$

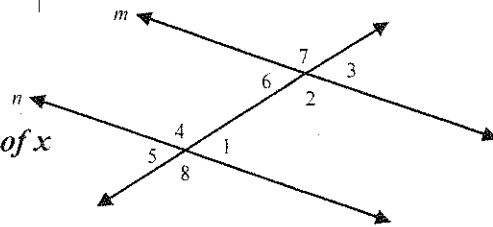3) $m\angle 3 = 35$, $m\angle 5 = ?$

4) $m\angle 4 = 130$, $m\angle 7 = ?$

5) $m\angle 1 = 45$, $m\angle 8 = ?$

6) $m\angle 4 = 126$, $m\angle 6 = ?$

7) $m\angle 2 = 115$, $m\angle 6 = ?$

8) $m\angle 4 = 115$, $m\angle 5 = ?$

#9-12: *Using the figure at the right,* **find the value of x**
and the indicated angle *if m // n :*

9) $m\angle 4 = 3x - 10$, $m\angle 2 = x + 80$, $m\angle 4 = ?$

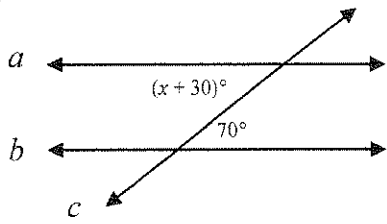10) $m\angle 1 = 3x - 10$, $m\angle 2 = 2x + 40$, $m\angle 3 = ?$

11) $m\angle 7 = 5x - 20$, $m\angle 5 = 4x + 57$, $m\angle 7 = ?$

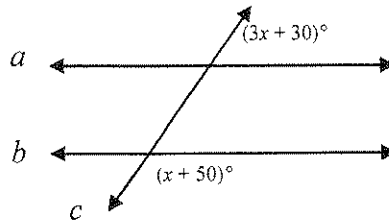12) $m\angle 1 = 5x - 40$, $m\angle 3 = 3x$, $m\angle 2 = ?$

#13-18) If $a \parallel b$, and lines a and b are cut by transversal c,
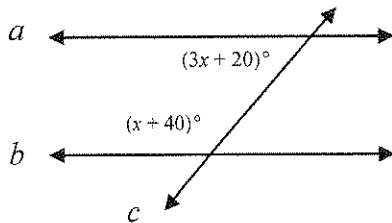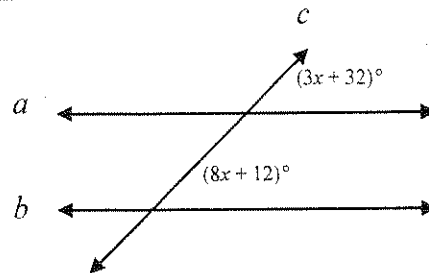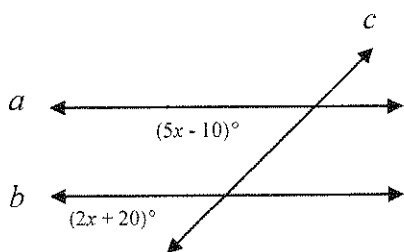   a) Identify the relationship between the angles   b) Find x:

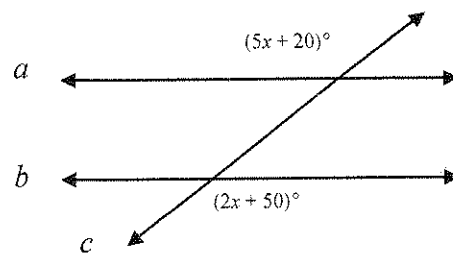13)

a

$(x + 30)°$

$70°$

b

c

14)

$(3x + 30)°$

a

b

$(x + 50)°$

c

15)

a

$(3x + 20)°$

$(x + 40)°$

b

c

16)

c

$(3x + 32)°$

a

$(8x + 12)°$

b

17)

c

a

$(5x - 10)°$

b

$(2x + 20)°$

18)

$(5x + 20)°$

a

b

$(2x + 50)°$

c

Given $\overrightarrow{AB} \parallel \overrightarrow{CD}$ *with transversal* $\overrightarrow{EF}$,

1) What angles are congruent to $\angle 3$?
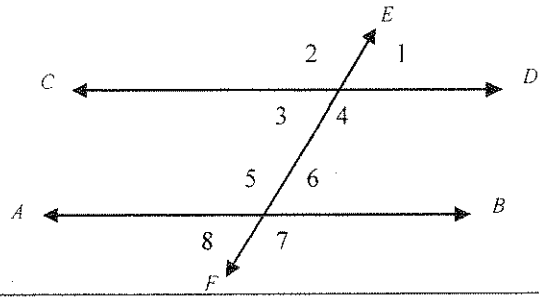
Use the figure to answer the following questions:

2) If $m\angle 5 = 2x + 10$ and $m\angle 4 = 5x - 50$ then find $m\angle 5$	3) If $m\angle 7 = 5x + 20$ and $m\angle 4 = 2x + 80$ then find $m\angle 4$
4) If $m\angle 5 = 4x + 20$ and $m\angle 3 = x + 50$ then find $m\angle 8$	5) If $m\angle 1 = 5x + 30$ and $m\angle 8 = 2x + 60$ then find $m\angle 7$
6) If $m\angle 4 : m\angle 6 = 5 : 4$ then find $m\angle 3$	7) If $m\angle 8 = \dfrac{5}{7} m\angle 2$ then find $m\angle 4$