

Day 2: Parallel Lines and Angles

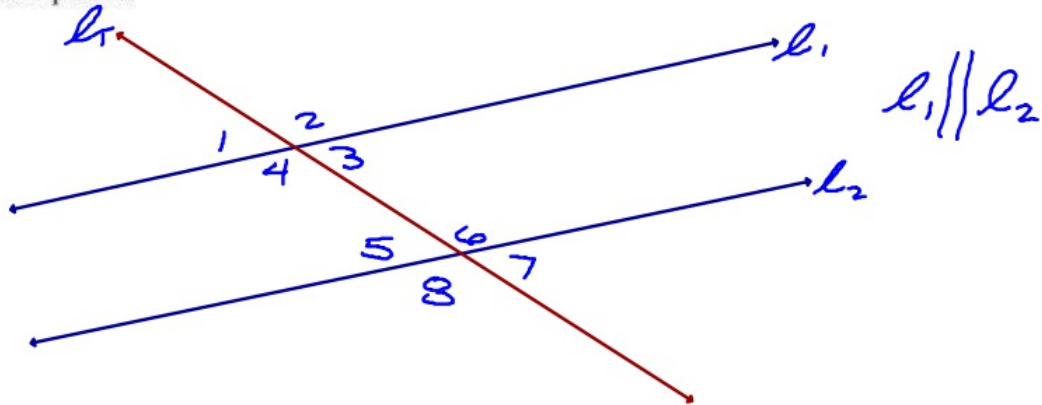
Date _____

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1) Parallel Lines are Two lines that never cross.

A Transversal is a line that intersects two or more lines.

Here is the picture:



Alt. Ext.
2) Alternate Exterior Angles: Congruent
opp. outside
 $\angle 1 \cong \angle 7$
 $\angle 2 \cong \angle 8$

4) Same-Side (Consecutive) Interior Angles:
 $\angle 4 \cong \angle 5$ Supplementary.
 $\angle 3 \cong \angle 6$

6) Vertical Angles:
across from Congruent.
 $\angle 1 \cong \angle 3$
 $\angle 2 \cong \angle 4$ ----

8) The following angle relationships are CONGRUENT (equal):
Acute (Little) \cong Acute (Little)
Obtuse (Big) \cong Obtuse (Big)

Alt. Int.
3) Alternate Interior Angles: Congruent.
opp. Inside
 $\angle 4 \cong \angle 6$
 $\angle 5 \cong \angle 3$

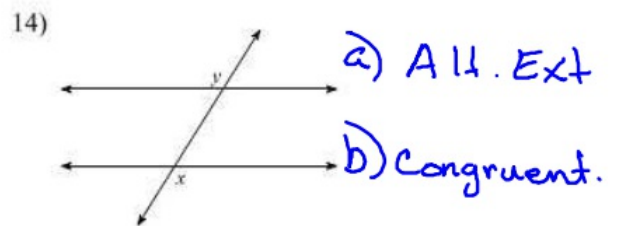
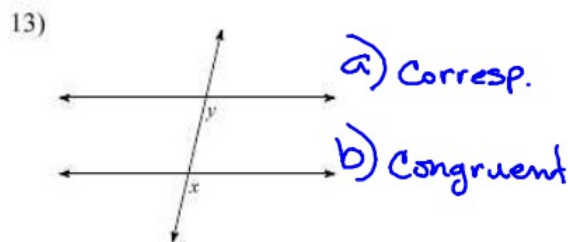
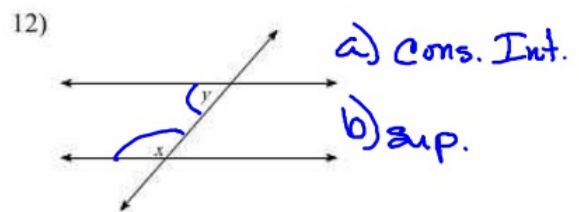
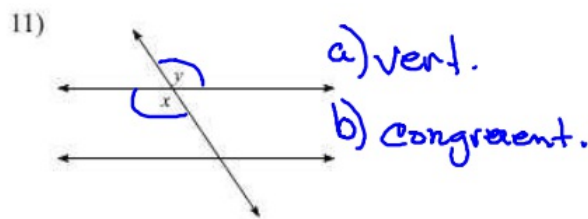
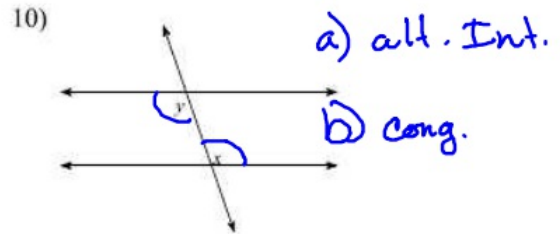
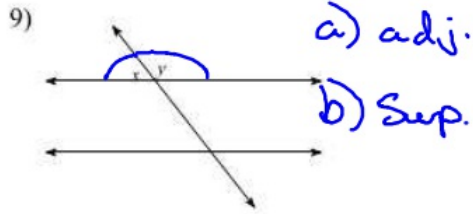
5) Corresponding Angles: Congruent
Same place
 $\angle 1 \cong \angle 5$ $\angle 3 \cong \angle 7$
 $\angle 2 \cong \angle 6$ $\angle 4 \cong \angle 8$

7) Adjacent Angles:
side by side Supplementary
 $\angle 1 \cong \angle 2$

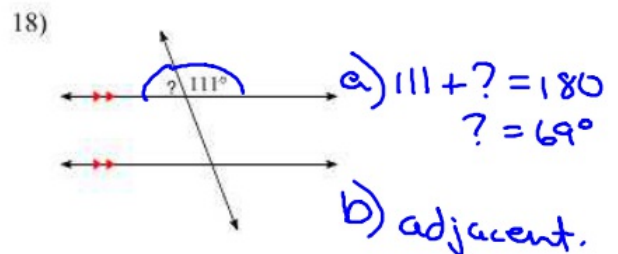
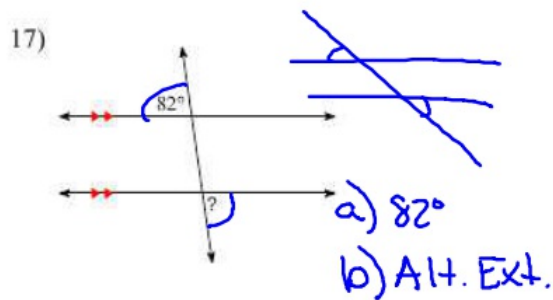
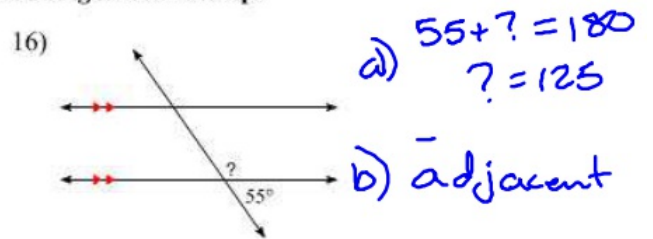
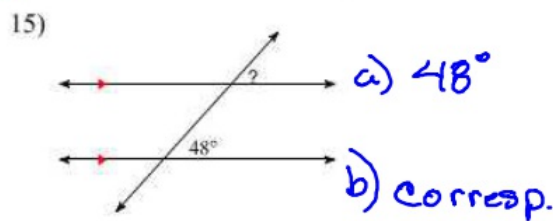
The following angle relationships are SUPPLEMENTARY (add up to 180):

one Acute (Little) and one Obtuse (Big)

Identify each pair of angles AND state whether they are congruent or supplementary.
 (corresponding, alternate interior, alternate exterior, same-side interior, vertical, or adjacent)



Find the measure of each angle indicated AND state the angle relationship.



Find the measure of BOTH angles indicated.

19)

$(101+x) + (x+99) = 180$
 $2x + 200 = 180$
 $-200 = -200$
 $2x = -20$
 $x = -10$

20)

$16x + 9 = 18x - 3$
 $-16x \quad -16x$
 $9 = 2x - 3$
 $+3 \quad +3$
 $12 = 2x$
 $6 = x$

21)

$22x - 5 = 21x$
 $-22x \quad -22x$
 $-5 = -x$
 $5 = x$

22)

$29x + 4 = 31x - 4$
 $-29x \quad -29x$
 $4 = 2x - 4$
 $+4 \quad +4$
 $8 = 2x$
 $4 = x$

23) PROVE IT!! :)

How do we prove lines are parallel?

Use definitions (example: definition of corresponding angles, definition of supplementary angles).

Organize your justifications in a t-table with statements and reasons.

Prove lines u and v are parallel.

24)

$\angle 1 \neq \angle 2$	Cons. Int
Consec. Int	Supplementary
$m\angle 1 + m\angle 2 = 180^\circ$	Supplementary
$l_u \parallel l_v$	Cons Int + Suppl

25)

$\angle 3 \neq \angle 4$	Alt. Ext.
Alt. Ext.	Congruent
$m\angle 3 \neq m\angle 4$	not congruent
$l_u \text{ not } \parallel l_v$	by Alt. Ext. - not congruent