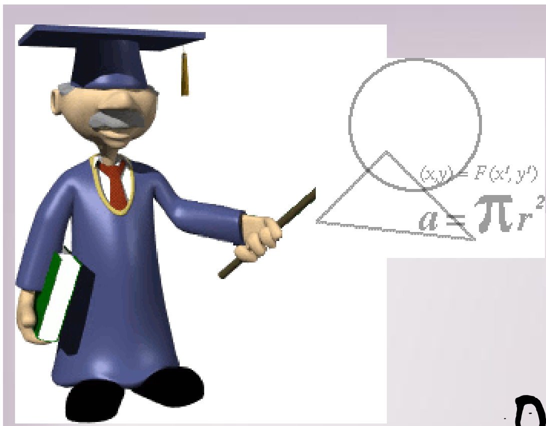


Warm up

Define parallel lines

Define parallel lines

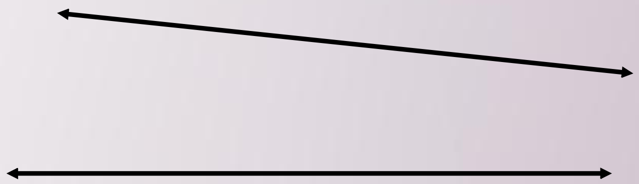
Parallel lines are coplanar lines that do not intersect.

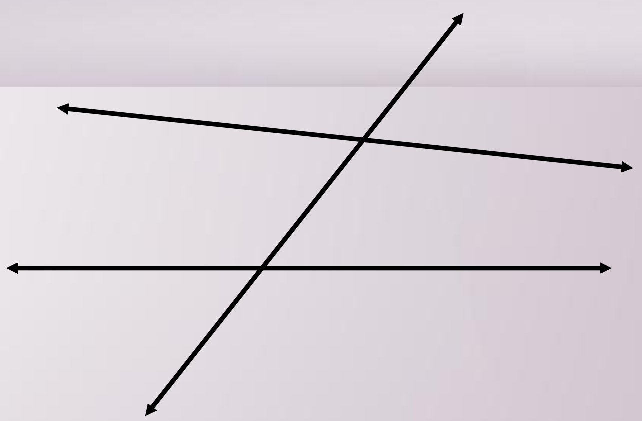
2 or more lines are || *iff* coplanar & not intersect

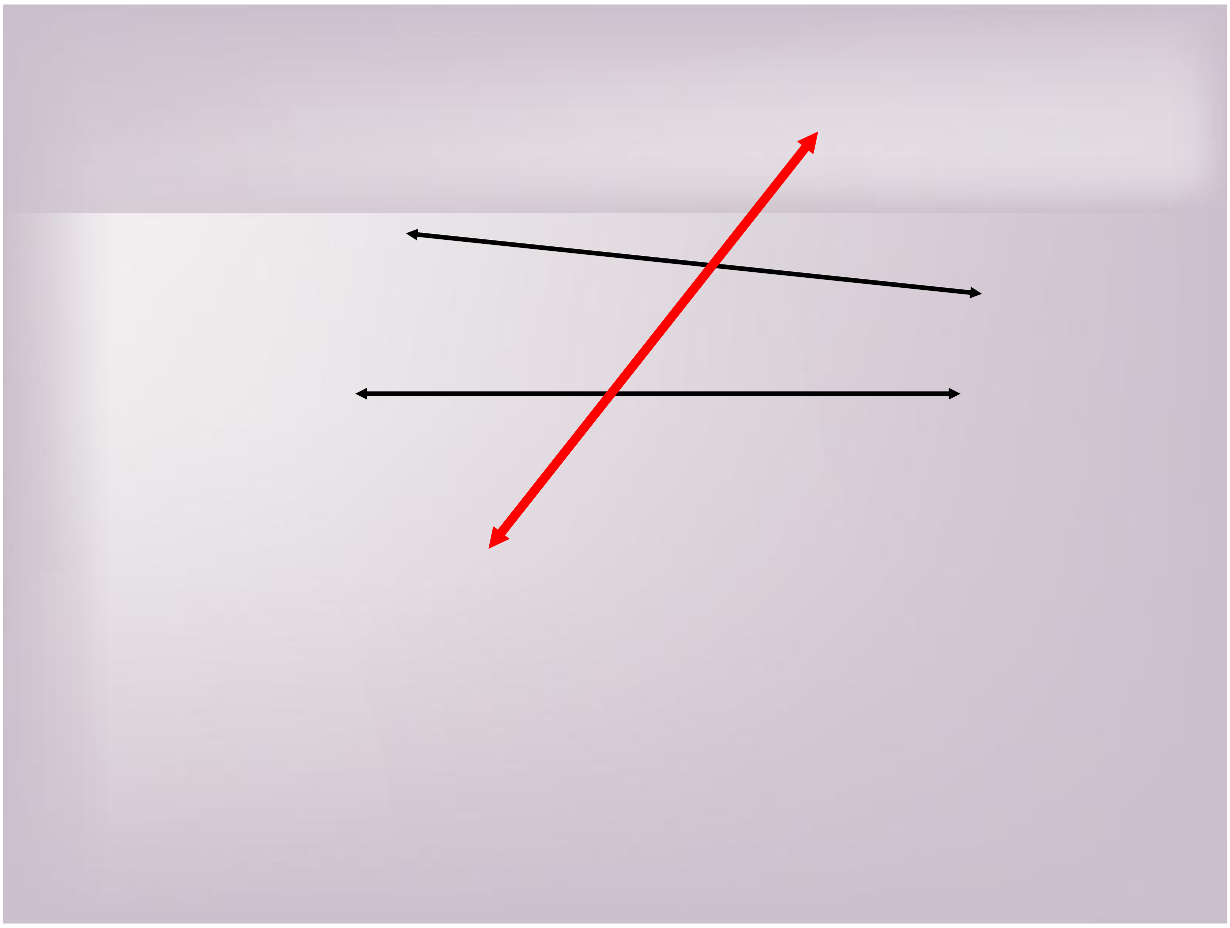
bi conditional

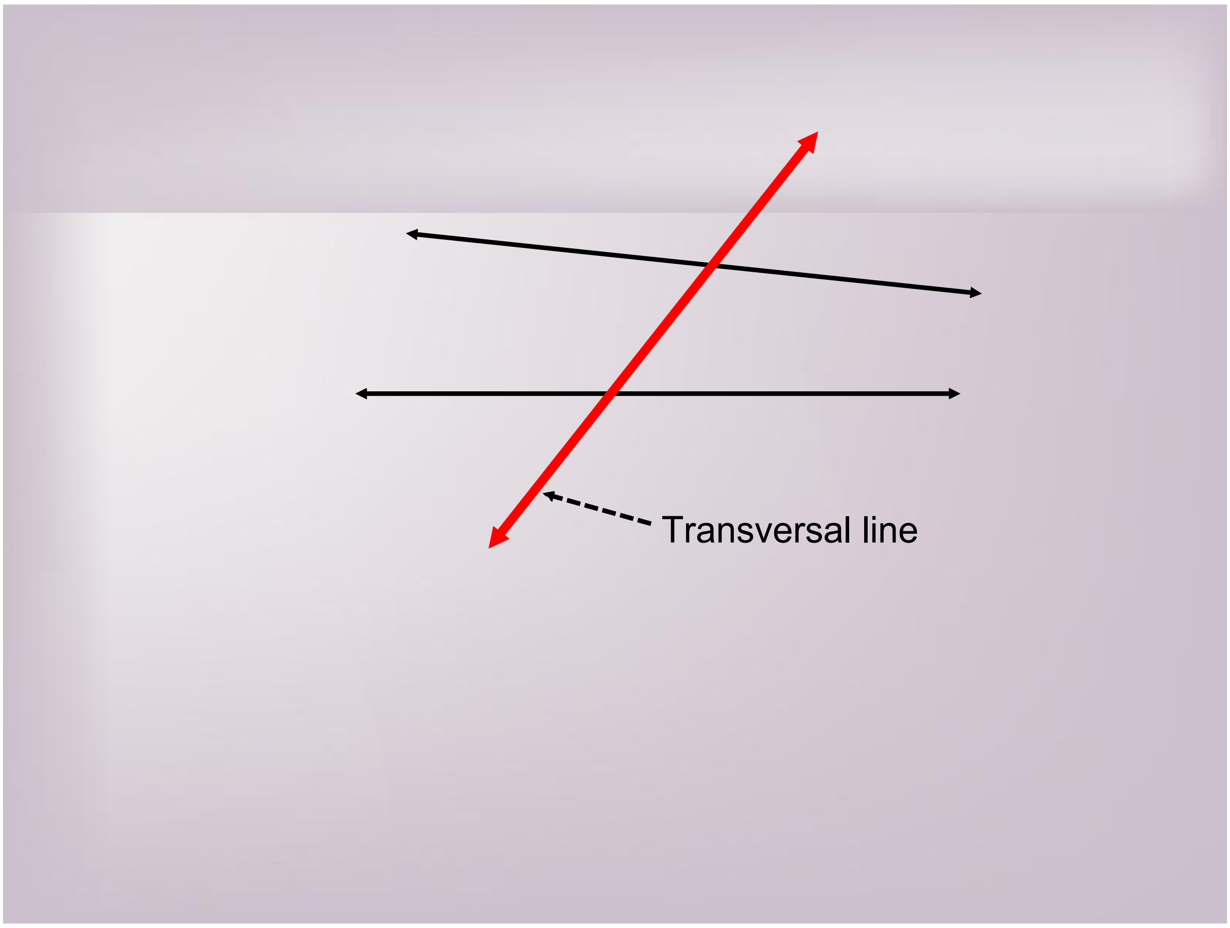
① if 2 lines are || then they are coplanar and don't intersect

② if 2 lines are coplanar & don't intersect then they are parallel

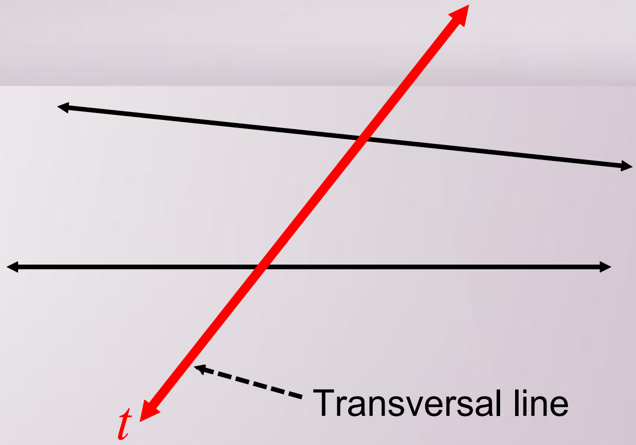






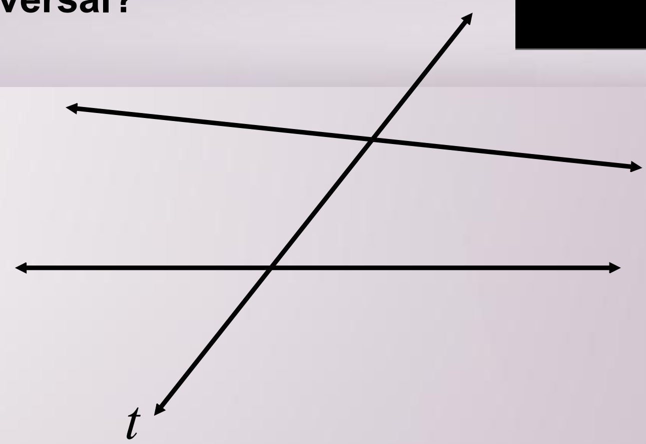

Transversal line

Transversal: A line that intersects 2 coplanar lines at 2 pts.



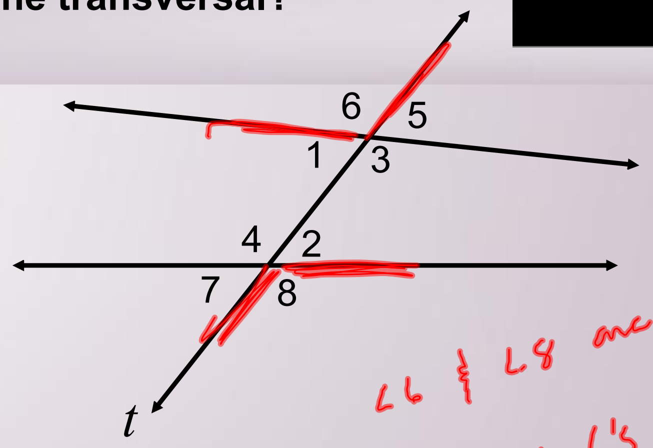
1 How many angles are formed by the transversal?

[redacted]



2 **How many vert ∠ pair are formed by the transversal?**

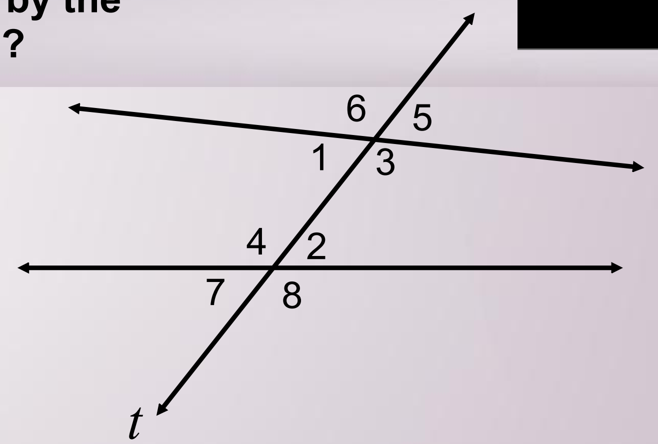
[redacted]



∠6 & ∠8 are not vert ∠'s! Their sides don't form opp rays.

3 **How many adj & suppl ∠ pair are formed by the transversal?** (both)

[redacted]



[redacted]

4 **How many angles do you think are identified by the term "interior angles"?**

A 1

B 2

C 3

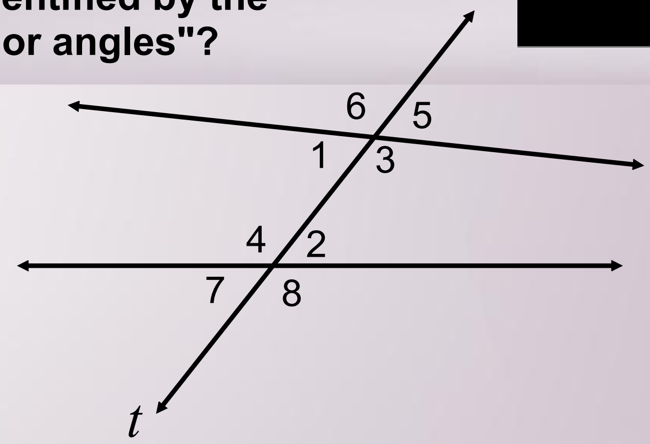
D 4

E 5

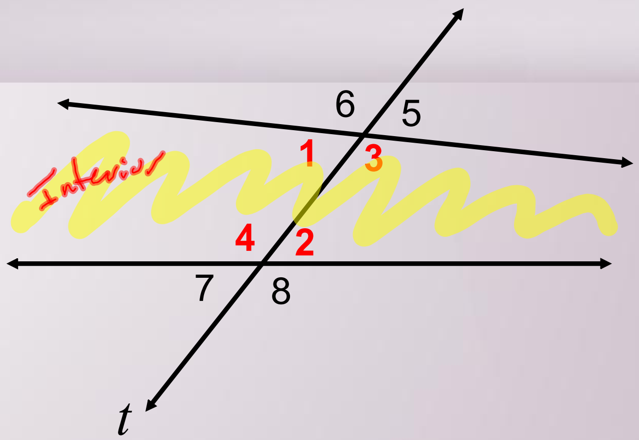
F 6

G 7

H 8



Interior angles: ∠'s formed by transversal btwn 2 lines.



5 How many angles do you think are identified by the term "exterior angles"?

[redacted]

A 1

B 2

C 3

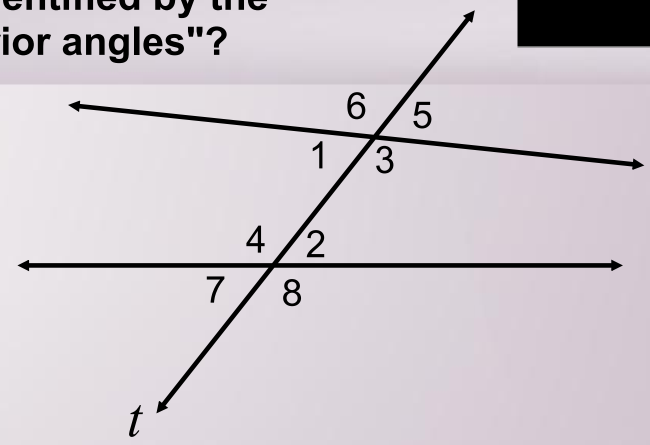
D 4

E 5

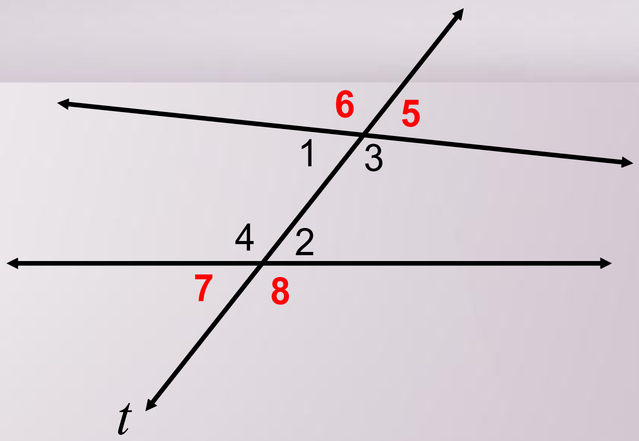
F 6

G 7

H 8



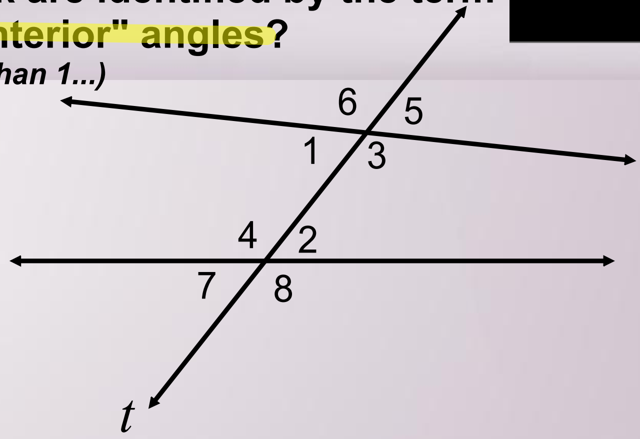
Exterior angles: ∠'s formed by transversal outside 2 lines.



6 Which of the following pairs of angles do you think are identified by the term "alternate interior" angles?

[redacted]

(may be more than 1...)



A 1, 2

B 1, 3

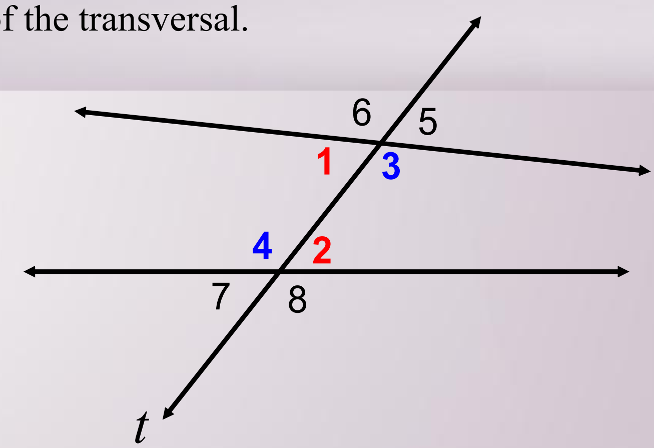
C 1, 4

D 2, 3

E 2, 4

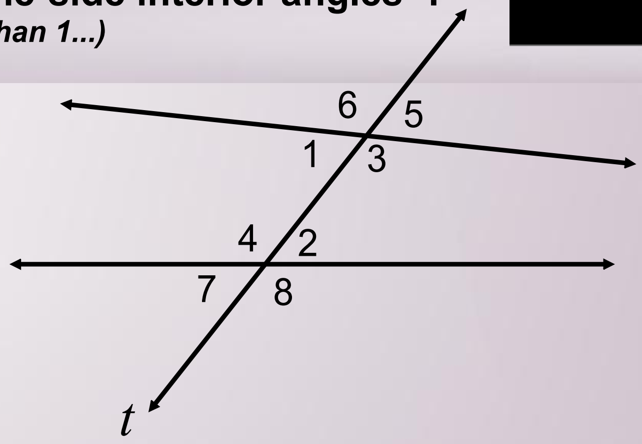
F 3, 4

Alternate interior angles: nonadjacent interior $\angle$'s that lie on opposite sides of the transversal.



7 **Which angle pairs are indicated by the phrase "same-side interior angles"?**
(may be more than 1...)

[redacted]



A 1, 2

B 1, 3

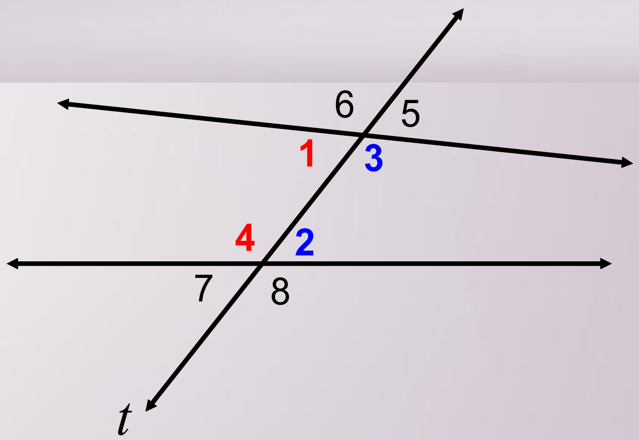
C 1, 4

D 2, 3

E 2, 4

F 3, 4

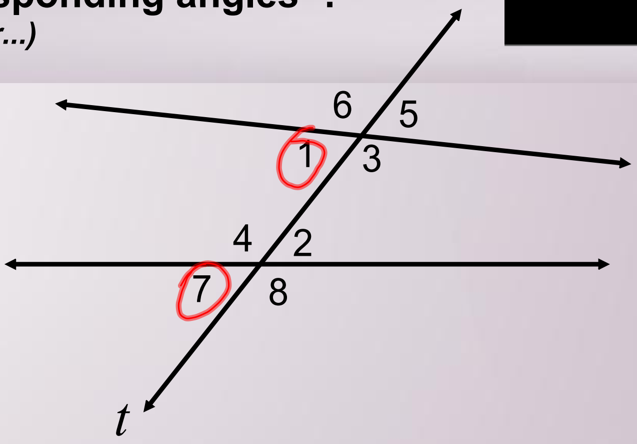
Same-side interior angles: int∠'s that lie on same side of transversal.



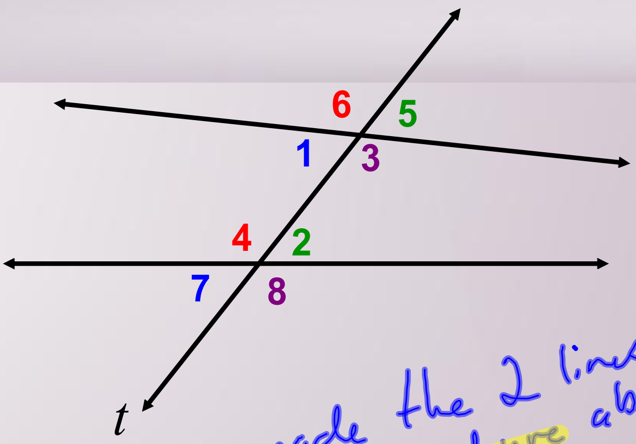
8 **Which angle pairs are indicated by the term "corresponding angles"?**
(there are 4 pair...)

[redacted]

A	1, 7
B	1, 8
C	3, 7
D	3, 8
E	5, 4
F	5, 2
G	6, 4
H	6, 2

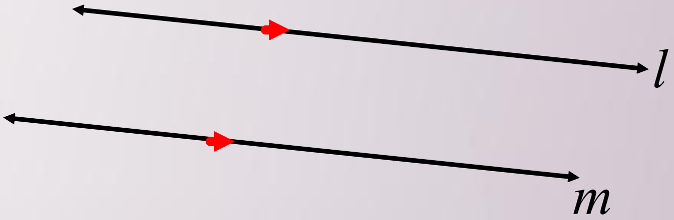


Corresponding angles: ∠'s on the same side of the transversal & of the 2 lines.

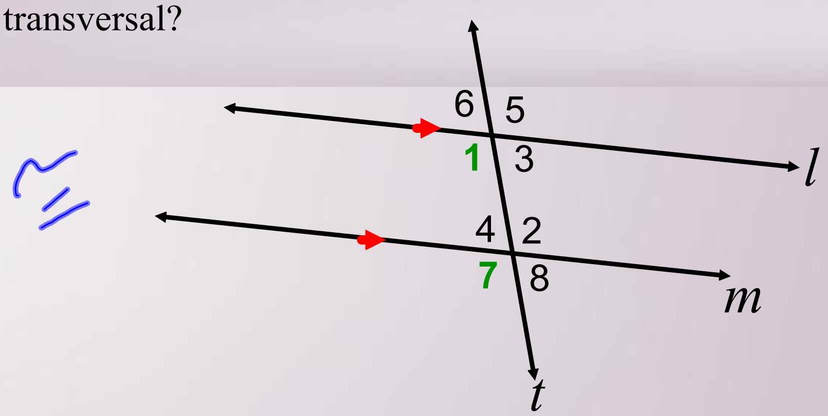


Now, what if we made the 2 lines parallel...
what would you conjecture about:
corr ∠'s: ≅
alt int ∠'s: ≅
SSI ∠'s: suppl

Parallel lines: 2 or more lines are || *iff* coplanar & not intersect

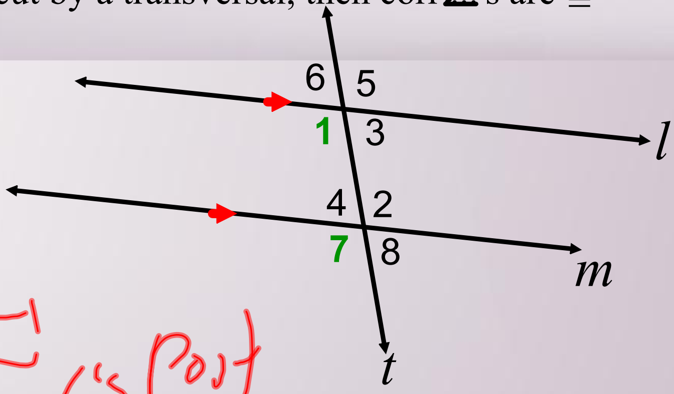


What would you conjecture about corr ∠'s formed by || lines and a transversal?



Postulate 3-1*: *Corresponding Angles Postulate

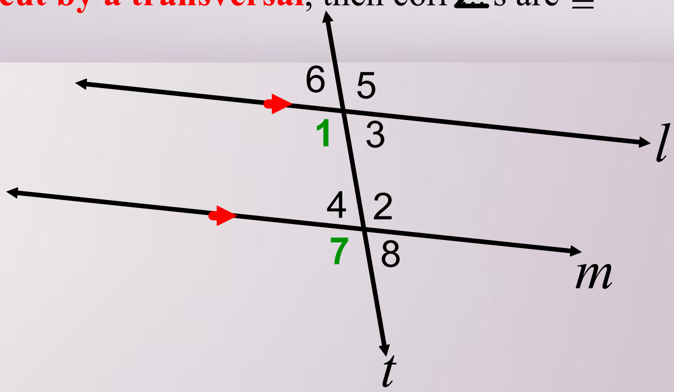
If 2 || lines are cut by a transversal, then corr∠'s are ≅



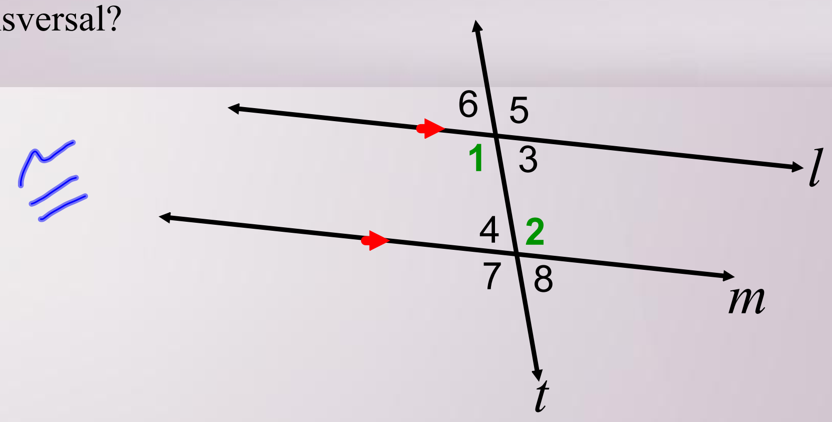
~~Post 3-1~~ Corr ∠'s Post

Postulate 3-1*: *Corresponding Angles Postulate

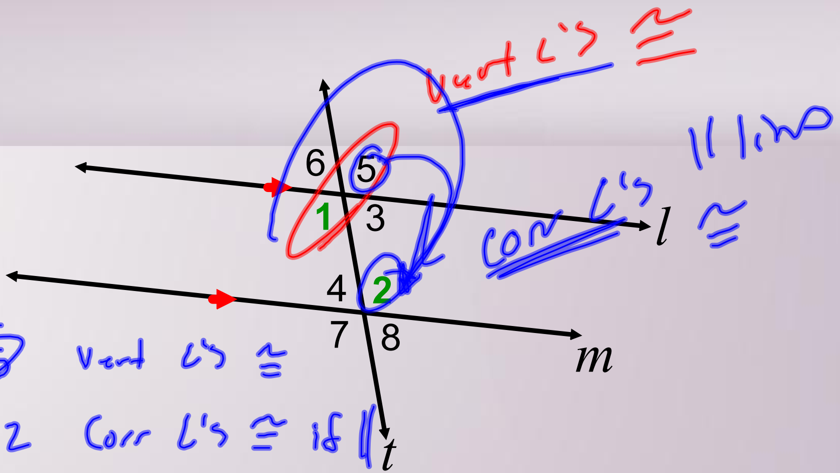
If 2 || lines are cut by a transversal, then corr∠'s are ≅



What would you conjecture about alt int∠'s formed by || lines & a transversal?



Plan a proof...



m∠1 = m∠5 vert ∠'s ≅

m∠5 = m∠2 Corr ∠'s ≅ if ||

m∠1 = m∠2 trans PoE

∠1 ≅ ∠2 defn ≅ ∠'s

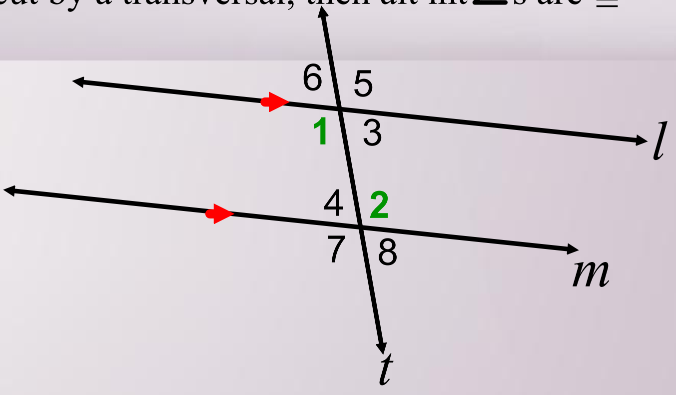
QED

WOOT

Alt Int ∠'s Thm

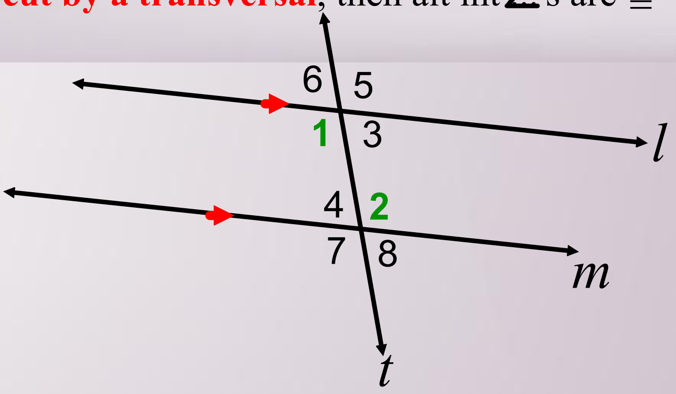
***Theorem 3-1**: Alternate Interior Angles Theorem*

If 2 || lines are cut by a transversal, then alt int ∠'s are ≅

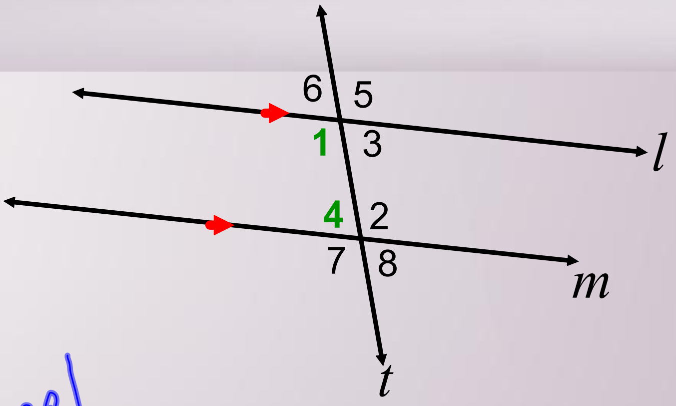


***Theorem 3-1**: Alternate Interior Angles Theorem*

If 2 || lines are cut by a transversal, then alt int ∠'s are ≅

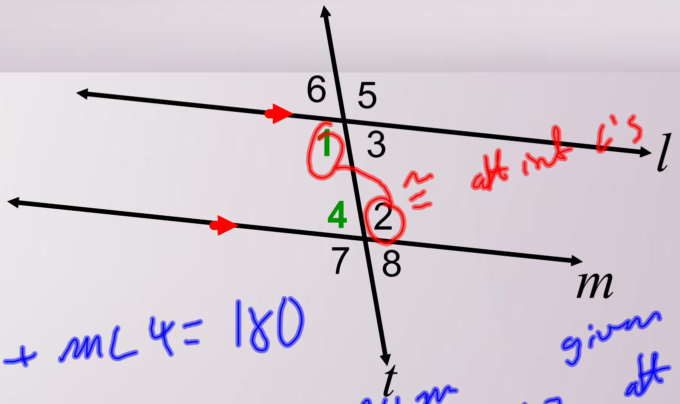


What would you conjecture about same-side int∠'s formed by ∥ lines and a transversal?



suppl

Plan a proof...



Goal / $m\angle 1 + m\angle 4 = 180$

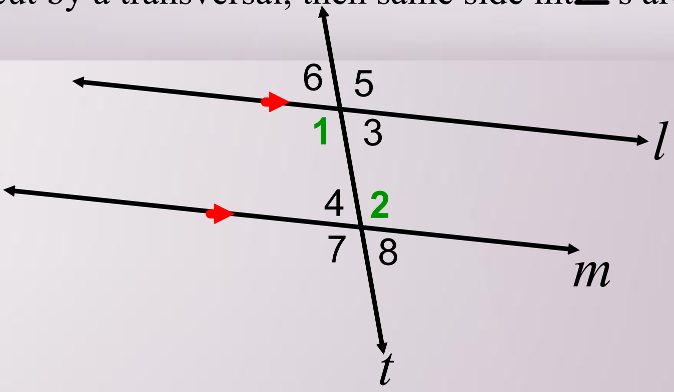
$l \parallel m$	given
$m\angle 1 = m\angle 2$	alt int ∠'s thm
$m\angle 4 + m\angle 2 = 180$	given supp ∠'s
$m\angle 4 + m\angle 1 = 180$	subst. pot

∴ SSI ∠'s are suppl

SSI ∠ Thm

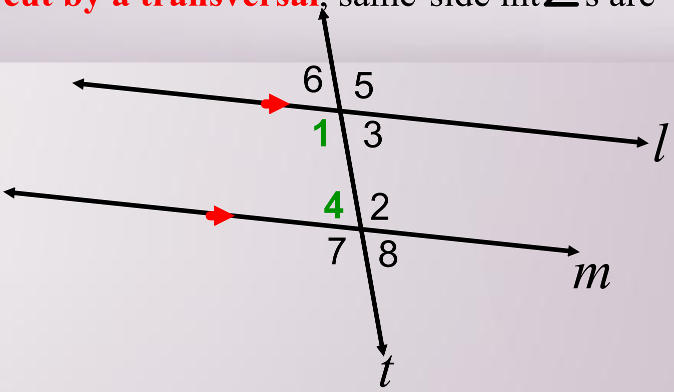
Theorem 3-2*: *Same-side Interior Angles Theorem

If 2 || lines are cut by a transversal, then same side int∠'s are supplemental



Theorem 3-2*: *Same-side Interior Angles Theorem

If 2 || lines are cut by a transversal, same-side int∠'s are supplemental



questions

next

1 a

2 b

3 c

4 d

5 e

a) $m\angle 3 =$

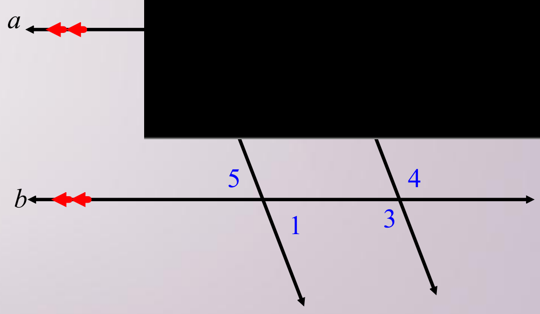
b) $m\angle 4 =$

c) $m\angle 5 =$

d) $m\angle 6 =$

e) $m\angle 7 =$

f) $m\angle 8 =$



[redacted]

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6

[redacted]

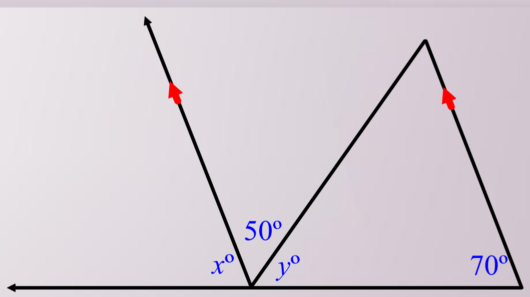
questions

next

1 a

a) $x =$

b) $y =$



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2

questions

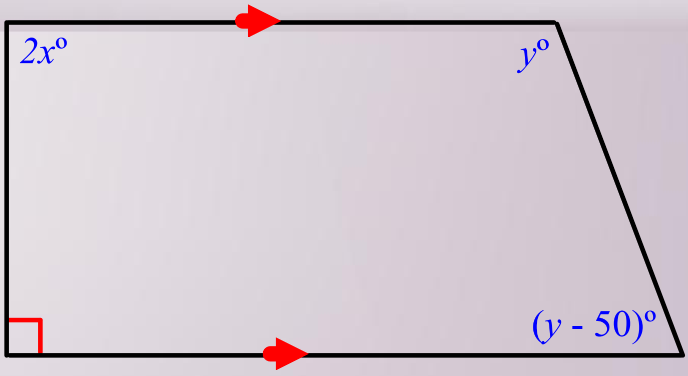
next

1 a

2

a) $x =$

b) $y =$



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HW Problems

Pg 118 #1-9

11-25

30, 32, 33, 39, 40, 45