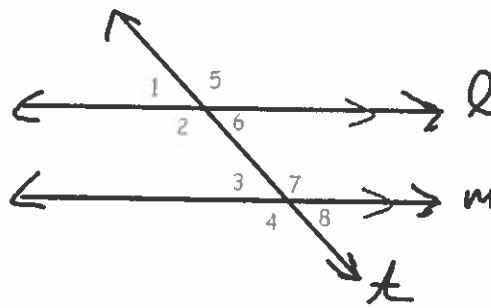


Corresponding Angles Postulate

Given:  $l \parallel m$

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



Alternate Interior Angles Theorem

Given:  $l \parallel m$

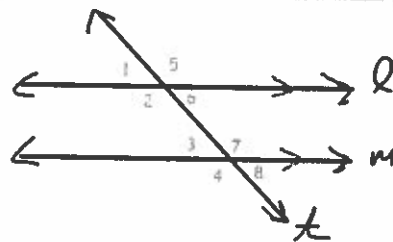
Prove:  $\angle 3 \cong \angle 6, \angle 2 \cong \angle 7$

Statements	Reasons
1 $l \parallel m$	Given
2 $\angle 2 \cong \angle 4,$ $\angle 3 \cong \angle 1$	Corr. $\angle$ s Post.
3 $\angle 4 \cong \angle 7,$ $\angle 1 \cong \angle 6$	Vert. $\angle$ s Thm
4 $\angle 3 \cong \angle 6,$ $\angle 2 \cong \angle 7$	Trans. Prop. $\cong$

Same Side Interior Angles Theorem

Given:  $l \parallel m$

Prove:  $\angle 2$  and  $\angle 3$  are supp.  
 $\angle 6$  and  $\angle 7$  are supp.

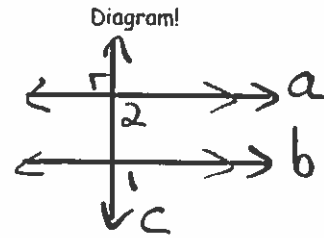


Statements	Reasons
1 $l \parallel m$	Given
2 $\angle 2$ and $\angle 6$ are supp. $\angle 6$ and $\angle 5$ are supp.	$\angle$ Add. Post.
3 $\angle 3 \cong \angle 6$	Alt. Int. $\angle$ s Thm
4 $\angle 5 \cong \angle 7$	Corr. $\angle$ s Post.
5 $\angle 2$ and $\angle 3$ are supp. $\angle 6$ and $\angle 7$ are supp.	$\cong$ Supp. Converse

Perpendicular Transversal Theorem

Given:  $a \perp c, a \parallel b$

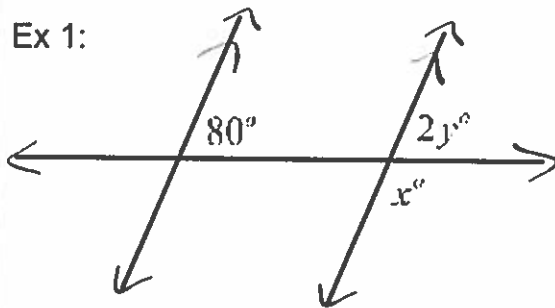
Prove:  $b \perp c$



Statements	Reasons
1 $a \perp c, a \parallel b$	Given
2 $\angle 2$ is a Right $\angle$	Def. of $\perp$
3 $\angle 2 \cong \angle 1$	Corr. $\angle$ s Post.
4 $\angle 1$ is a Right $\angle$	Right $\angle$ s Thm
5 $b \perp c$	Def. of $\perp$

Find the value of  $x$  and  $y$ . You must justify any initial equations.

Ex 1:

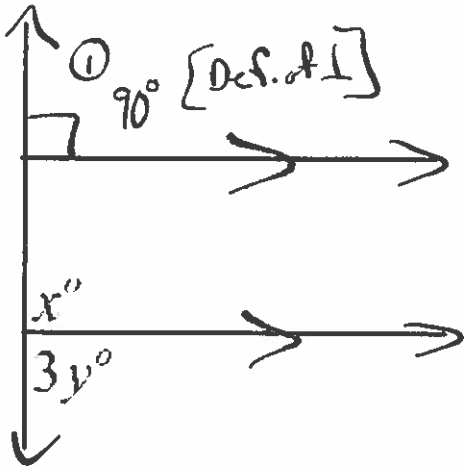


①  $2y = 80$  [Corr.  $\angle$ s Post.]    ②  $2y + x = 180^\circ$  [ $\angle$  Add Post.]

$y = 40$

$x = 100$  [Subtr. Prop. = ]  
(2 - 1)

Ex 2:



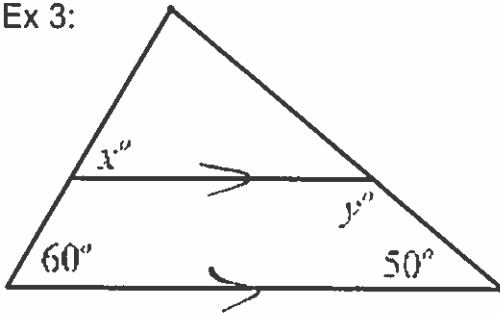
②  $x = 90$  [Corr.  $\angle$ s Post.]

③  $3y + x = 180$  [ $\angle$  Add Post.]

$3y = 90$  [Subtr. Prop of =]

$y = 30$  (3 - 2)

Ex 3:



①  $x = 60$  [Corr.  $\angle$ s Post.]

②  $y + 50 = 180$  [S.S. Int  $\angle$ s]  
Then

$y = 130$

Ex 4:

①  $x = 110$  [Corr.  $\angle$ s Post.]

②  $2y = x$  [Corr.  $\angle$ s Post.]

$2y = 110$

$y = 55$

Find the value of  $x$  and  $y$ . You must justify any initial equations.

Ex 5:

By the S.S. Int.  $\angle$ s Thm:

①  $8y + 2x - 4 = 180$

$2x + 8y = 184$

$x + 4y = 92$

②  $2y + 5x - 10 = 180$

$5x + 2y = 190$

$$\left\{ \begin{array}{l} -10x - 4y = -380 \\ x + 4y = 92 \end{array} \right. \xrightarrow{x=2} \left\{ \begin{array}{l} -9x = -288 \\ x = 32 \end{array} \right.$$

$x = 32 \rightarrow$  ①  $32 + 4y = 92$

$4y = 60$

$y = 15$