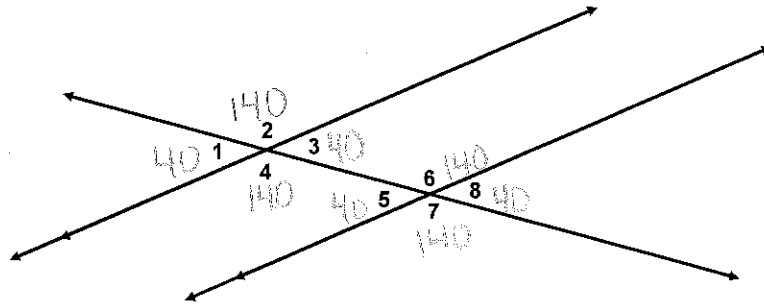


Objectives: Prove and use theorems about the angles formed by parallel lines and a transversal.

- In your homework, you discovered facts about angles when formed by parallel lines. Mark the angles below with what you found, then complete the theorems/postulate.

Theorems About Parallel Lines: Complete the 4 theorems below. Each has the same *hypothesis*.

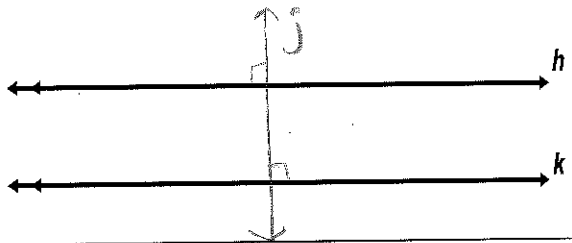
If two parallel lines are cut by a transversal, then the pairs of ...



- | | |
|---|---|
| <p>1) Corresponding Angles are <u>\cong</u>
 EX: <u>$\angle 2 \cong \angle 6, \angle 4 \cong \angle 8$</u></p> | <p>3) Consecutive Interior Angles are <u>Supplementary</u>
 EX: <u>$\angle 4 + \angle 5, \angle 3 + \angle 6$</u></p> |
| <p>2) Alternate Interior Angles are <u>\cong</u>
 EX: <u>$\angle 3 \cong \angle 5, \angle 4 \cong \angle 6$</u></p> | <p>4) Alternate Exterior Angles are <u>\cong</u>
 EX: <u>$\angle 1 \cong \angle 8, \angle 2 \cong \angle 7$</u></p> |

- Trick:** When 2 parallel lines are cut by a transversal, then
 - all acute angles will be equal,
 - all obtuse angles will be equal, and
 - any pair angles (1 obtuse, 1 acute) will be Supplementary.

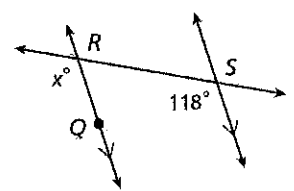
5) Perpendicular Transversal Theorem: If a transversal is perpendicular to one of two parallel lines, then it is perpendicular to the other.



> If $j \perp h$, and $h \parallel k$, then $j \perp k$.

Find the value of x and each angle measure.

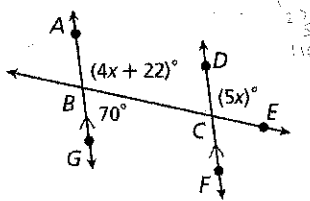
EX 1:



$$\begin{array}{r} 180 \\ -118 \\ \hline 62 \end{array}$$

$x = 118$
 $m\angle QRS = 62^\circ$

EX 2:



$$\begin{array}{r} 4x + 22 + 70 = 180 \\ 4x + 92 = 180 \\ -92 \quad -92 \\ \hline 4x = 88 \\ \frac{4x}{4} = \frac{88}{4} \quad x = 22 \end{array}$$

$x = 22$
 $m\angle ECF = 110^\circ$
 $m\angle DCE = 70^\circ$