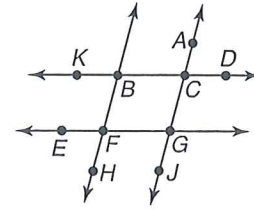


# 3-5 Practice

## Proving Lines Parallel

Given the following information, determine which lines, if any, are parallel. State the postulate or theorem that justifies your answer.



1.  $m\angle BCG + m\angle FGC = 180$     2.  $\angle CBF \cong \angle GFH$

$\overleftrightarrow{BD} \parallel \overleftrightarrow{EG}$

$\overleftrightarrow{BD} \parallel \overleftrightarrow{EG}$

Cons. int.  $\angle$ 's

Corr.  $\angle$ 's

3.  $\angle EFB \cong \angle FBC$

4.  $\angle ACD \cong \angle KBF$

$\overleftrightarrow{BD} \parallel \overleftrightarrow{EG}$

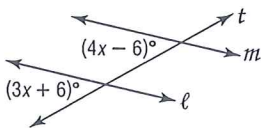
$\overleftrightarrow{AD} \parallel \overleftrightarrow{BH}$

Alt. Int.  $\angle$ 's (AFA)

Alt-Ext  $\angle$ 's (AEA)

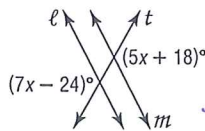
Find  $x$  so that  $\ell \parallel m$ .

5.



$4x - 6 = 3x + 6$   
 $x = 12$

6.



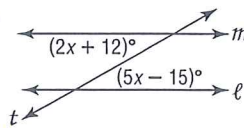
$7x - 24 = 5x + 18$

$2x - 24 = 18$

$2x = 42$

$x = 21$

7.



$2x + 12 = 5x - 15$

$12 = 3x - 15$

$27 = 3x$

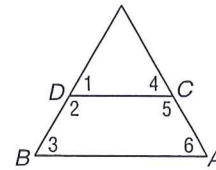
$x = 9$

8. PROOF Write a two-column proof.

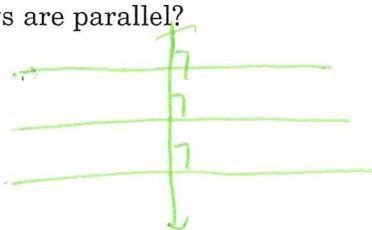
Given:  $\angle 2$  and  $\angle 3$  are supplementary.

Prove:  $\overline{AB} \parallel \overline{CD}$

Statements	Reasons
1. $\angle 2$ and $\angle 3$ are supplementary	1. Given
2. $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$	2. If consecutive interior $\angle$ 's are supplementary then lines are $\parallel$ .
3. $\overline{AB} \parallel \overline{CD}$	3. Segments contained in $\parallel$ lines are $\parallel$ .



9. LANDSCAPING The head gardener at a botanical garden wants to plant rosebushes in parallel rows on either side of an existing footpath. How can the gardener ensure that the rows are parallel?



$90^\circ$  angles of footpath