**Activity 2.5.6 More Proofs with Parallel Lines**

In the figure below, $\overleftrightarrow{AH}∥\overleftrightarrow{EF}$. $\overleftrightarrow{DE }$is a transversal.



1- 6. Fill in the blanks:

1. $∠CBH≅∠FCB$ because they are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ angles.
2. $∠DBH≅∠BCG$ because they are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ angles.
3. $∠FCE≅∠BCG$ because they are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ angles.
4. $∠DBA≅∠GCE$ because they are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ angles.
5. $∠HBC$ and $∠GCB$ are supplementary because they are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ angles.
6. $∠ABC$ and $∠BCF$ are supplementary because they are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ angles.

Suppose m$∠ABC$ = 51°. Find the measures of each of these angles and explain why your answer is correct.

1. m$∠BCG$ = \_\_\_\_\_\_\_\_. Explanation:
2. m$∠FCE$ = \_\_\_\_\_\_\_\_. Explanation:
3. m$∠BCF$ = \_\_\_\_\_\_\_\_. Explanation:
4. m$∠GCE$ = \_\_\_\_\_\_\_\_. Explanation:



Use the figure above for the proofs on this page.

11. Given $\overleftrightarrow{AB}∥\overleftrightarrow{CD}$ and $\overleftrightarrow{AC}∥\overleftrightarrow{BD}$.
 Prove that m $∠$1 = m $∠$3.
 (Hint: first show that both are equal to m $∠$2)

12. Given $\overleftrightarrow{AB}∥\overleftrightarrow{CD}$ and $\overleftrightarrow{AC}∥\overleftrightarrow{BD}$.
 Prove that m $∠$2 = m $∠$4.

13. Given $\overleftrightarrow{AB}∥\overleftrightarrow{CD}$ and $\overleftrightarrow{AC}∥\overleftrightarrow{BD}$.
 Prove that m $∠$1 + m $∠$5 = 180°.

14. Given $\overleftrightarrow{AB}∥\overleftrightarrow{CD}$ and $\overleftrightarrow{AC}∥\overleftrightarrow{BD}$.
 Prove that m $∠$4 + m $∠$6 = 180°.