

1. sometimes 2. sometimes 3. never 4. never 5. never 6. always
 7. $(3x - 20) + x = 180; x = 50$ 8. $2x + 12 = 4(x - 7); x = 20$
 9. $m\angle 1 = m\angle 2 = 60, m\angle 3 = 120$
 10. $m\angle 1 = 58, m\angle 2 = 90, m\angle 3 = 32, m\angle 4 = 180 - (32 + 35) = 113, m\angle 5 = 35,$
 $m\angle 6 = 55$

11. $m\angle 4 = \frac{(5 - 2)180}{5} = 108, m\angle 5 = 108 - 72 = 36, m\angle 1 = 180 - 108 = 72,$

$m\angle 2 = 180 - 108 = 72, m\angle 3 = 180 - (72 + 72) = 36$

12. $\angle EBC \cong \angle 2$ (If 2 lines are cut by a trans. and alt. int. $\angle$ s are $\cong$, then the lines are $\parallel$.), or $\angle 5 \cong \angle 3$ (If 2 lines are cut by a trans. and corr. $\angle$ s are $\cong$, then the lines are $\parallel$.)

13. Statements	Reasons
1. $\overrightarrow{BF}$ bisects $\angle ABE$; $\overrightarrow{DG}$ bisects $\angle CDB$.	1. Given
2. $m\angle GDB = \frac{1}{2}m\angle CDB$; $m\angle FBE = \frac{1}{2}m\angle ABE$	2. $\angle$ Bis. Thm.
3. $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$	3. Given
4. $m\angle CDB = m\angle ABE$	4. If 2 $\parallel$ lines are cut by a trans., then corr. $\angle$ s are $\cong$.
5. $\frac{1}{2}m\angle CDB = \frac{1}{2}m\angle ABE$	5. Div. Prop. of =
6. $m\angle GDB = m\angle FBE$	6. Substitution Prop.
7. $\overleftrightarrow{BF} \parallel \overleftrightarrow{DG}$	7. If 2 lines are cut by a trans. and corr. $\angle$ s are $\cong$, then the lines are $\parallel$.

14. 15, 17