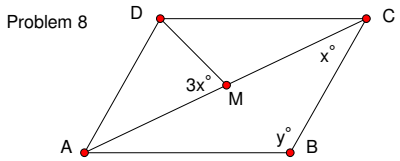
1. $\boxed{x = 50, y = 5}$
2. $\boxed{x = 30, y = 100}$
3. $\boxed{x = 15, y = 30}$
4. $\boxed{x = 35, y = 55}$
5. $\boxed{x = 25, y = 45}$
6. $\boxed{x = 23, y = 18}$
7. $\boxed{x = 52.5, y = 37.5}$
8. This problem is missing information that M is the midpoint of $\overline{AC}$. Given this information, we know that $\overline{DM}$ is a segment on the diagonal since the diagonals of a rhombus bisect each other. We also know that the diagonals of a rhombus are perpendicular, giving $3x = 90$ or $\boxed{x = 30}$. The diagonals of a rhombus also bisect the vertex angles so $\angle BCD = 2(30) = 60$. Using $\overline{DC} \parallel \overline{AB}$ with $\overline{BC}$ as a transversal, $60 + y = 180$ so $\boxed{y = 120}$.



9. $\boxed{x = 67.5, y = 22.5}$
10. Trick question. $BG = GC$ but $BG = HG$ so $\overline{GH}$ must be $\overline{GC}$. This makes $\boxed{x = 0, y = 90}$