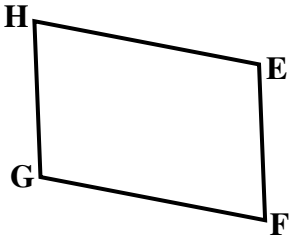
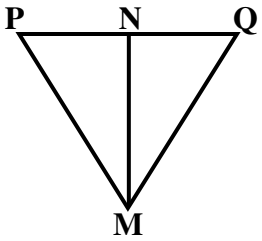
Geometry
ASSIGNMENT 2.2

Mark the diagram with the given information.

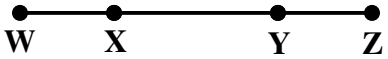
1. GH = 4, EF = 4
HE = 6, GF = 6



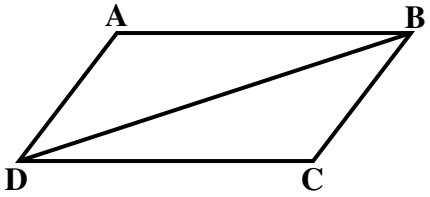
2. N is the midpoint of PQ.



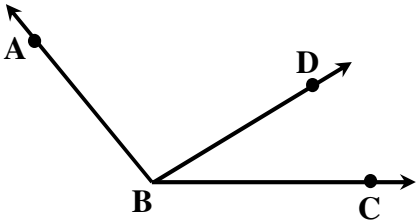
3. $\overline{WX} \cong \overline{YZ}$



4. $\overrightarrow{BD}$ bisects $\angle ABC$

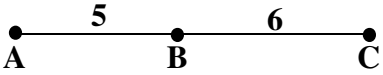


5. $m\angle ABC = 125°$



6. Given: AB = 5, BC = 6

Prove: AC = 11



Statement	Reason
1. AB = 5, BC = 6	**1. a)**
2. AC = AB + BC	**2. b)**
3. AC = 5 + 6	**3. c)**
4. AC = 11	**4. d)**

7. Given: B is the midpoint of $\overline{AC}$. **(Note: Draw a diagram)**
C is the midpoint of $\overline{BD}$.

Prove: AB = CD

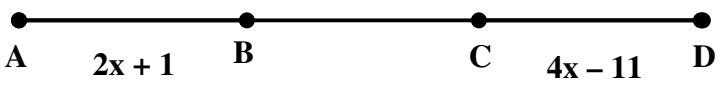
Statement	Reason
1. B is the midpoint of $\overline{AC}$. C is the midpoint of $\overline{BD}$.	**1. a)**
2. $AB \cong BC$	**2. b)**
3. $BC \cong CD$	**3. c)**
4. $AB \cong CD$	**4. d)**
5. AB = CD	**5. e)**

8. Given: $\overrightarrow{QS}$ is an angle bisector of $\angle PQR$. **(Note: Draw a diagram)**

Prove: $m\angle PQS = \frac{1}{2} m\angle PQR$

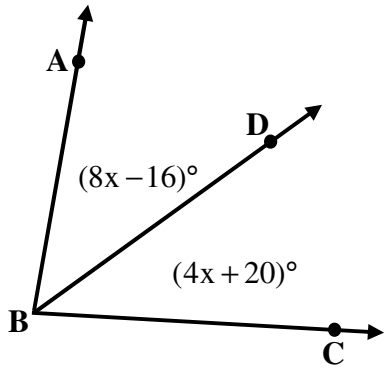
Statement	Reason
1. $\overrightarrow{QS}$ is an angle bisector of $\angle PQR$.	**1. a)**
2. $\angle PQS \cong \angle SQR$	**2. b)**
3. $m\angle PQS = m\angle SQR$	**3. c)**
4. $m\angle PQS + m\angle SQR = m\angle PQR$	**4. d)**
5. $m\angle PQS + m\angle PQS = m\angle PQR$	**5. e)**
6. $2 \bullet m\angle PQS = m\angle PQR$	**6. f)**
7. $m\angle PQS = \frac{1}{2} m\angle PQR$	**7. g)**

9. Given $\overline{AB} \cong \overline{BC}, \overline{BC} \cong \overline{CD}$. Find x giving a reason for each step.



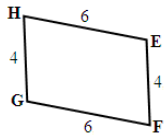
Statement	Reason
1. $\overline{AB} \cong \overline{BC}, \overline{BC} \cong \overline{CD}$	**1. a)**
2. $\overline{AB} \cong \overline{CD}$	**2. b)**
3. $AB = CD$	**3. c)**
4. $AB = 2x + 1, CD = 4x - 11$	**4. d)**
5. $2x + 1 = 4x - 11$	**5. e)**
6. $2x = 4x - 12$	**6. f)**
7. $-2x = -12$	**7. g)**
8. $x = 6$	**8. h)**

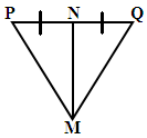
10. Given $\overrightarrow{BD}$ bisects $\angle ABC$. Find x giving a reason for each step.

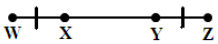


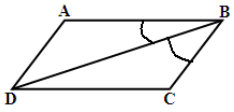
Statement	Reason
1. $\overrightarrow{BD}$ bisects $\angle ABC$	**1. a)**
2. $m\angle ABD = 8x-16,\ m\angle DBC = 4x+20$	**2. b)**
3. $m\angle ABD = m\angle DBC$	**3. c)**
4. $8x-16 = 4x+20$	**4. d)**
5. $8x = 4x+36$	**5. e)**
6. $4x = 36$	**6. f)**
7. $x = 9$	**7. g)**

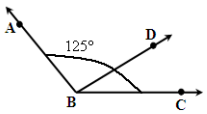
Answer Key:

1) 

2) 

3) 

4) 

5) 

6) a) Given **b)** Segment Addition Postulate **c)** Substitution **d)** Simplification

7) a) Given **b)** Definition of Midpoint **c)** Definition of Midpoint **d)** Transitive Property **e)** Definition of Congruence

8) a) Given **b)** Definition of Angle Bisector **c)** Definition of Congruence **d)** Angle Addition Postulate **e)** Substitution **f)** Simplification **g)** Division Property

9) a) Given **b)** Transitive Property **c)** Definition of Congruence **d)** Given **e)** Substitution **f)** Subtraction Property **g)** Subtraction Property **h)** Division Property

10) a) Given **b)** Given **c)** Definition of Angle Bisector **d)**Substitution **e)**Addition Property **f)** Subtraction Property **g)** Division Property