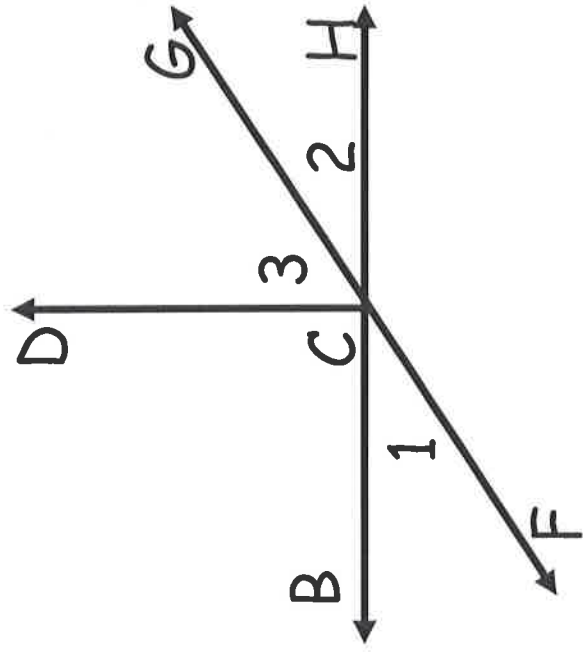


Station 1 - Provide a justification (definition, property, postulate, or theorem) for each statement.



- 1.) If  $\overline{BH} \perp \overline{DC}$ , then  $\angle DCH$  is a right angle.
- 2.)  $FC + CG = FG$ .
- 3.) If  $C$  is the midpoint of  $\overline{FG}$ , then  $FC = CG$ .
- 4.)  $m\angle BCG + m\angle GCH = 180$ .
- 5.) If  $\angle DCH$  is a right angle, then  $m\angle DCH = 90$ .
- 6.)  $m\angle DCG + m\angle GCH = m\angle DCH$ .
- 7.) If  $\angle BCD$  is a right angle, then  $\overline{BH} \perp \overline{DC}$ .
- 8.) If  $C$  is the midpoint of  $\overline{FG}$ , then  $FC = \frac{1}{2}FG$ .
- 9.) If  $\angle 3$  and  $\angle 1$  are complementary angles, then  $m\angle 3 + m\angle 1 = 90$ .
- 10.)  $\angle BCF \cong \angle GCH$
- 11.) If  $m\angle 1 = m\angle 2$  and  $m\angle 2 = m\angle 3$ , then  $m\angle 1 = m\angle 3$ .
- 12.) If  $m\angle BCF + m\angle FCH = m\angle FCH + m\angle HCG$ , then  $m\angle BCF = m\angle HCG$ .
- 13.) If  $\overline{CG}$  bisects  $\angle DCH$ , then  $\angle DCG \cong \angle GCH$
- 14.) If  $m\angle DCG + m\angle FCH = 180$ , then  $\angle DCG$  and  $\angle FCH$  are supplementary angles.
- 15.) If  $\overline{CG}$  bisects  $\angle DCH$ , then  $m\angle DCG = \frac{1}{2}m\angle DCH$ .

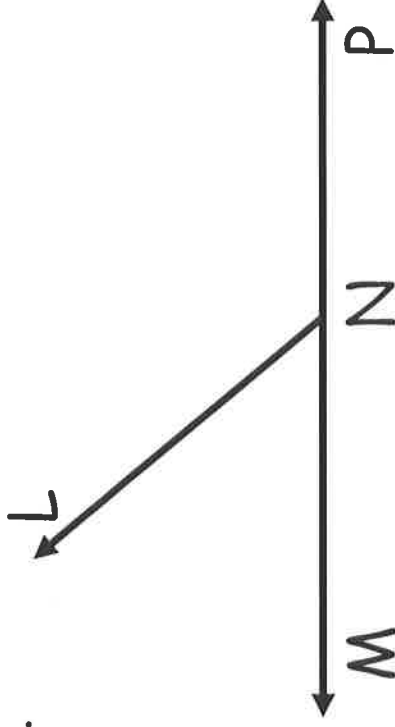
## Station 2 - Complete each algebra connection problem.

1.



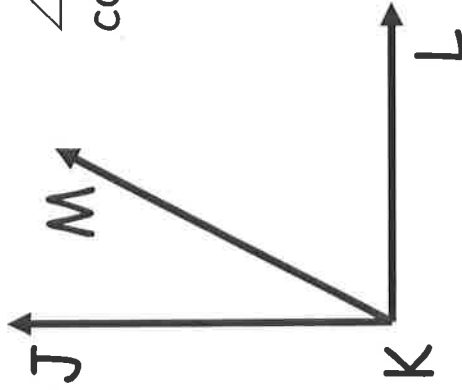
If  $DF = 2x - 1$ ,  $FG = 2x + 7$ , and  $DG = 6x - 8$ , find the value of  $x$ ,  $DF$ ,  $FG$ , and  $DG$ .

2.



If  $m\angle MNL = 14x + 2$  and  $m\angle LNP = 45x + 1$ , find the value of  $x$ ,  $m\angle MNL$ ,  $m\angle LNP$ , and  $m\angle MNP$ .

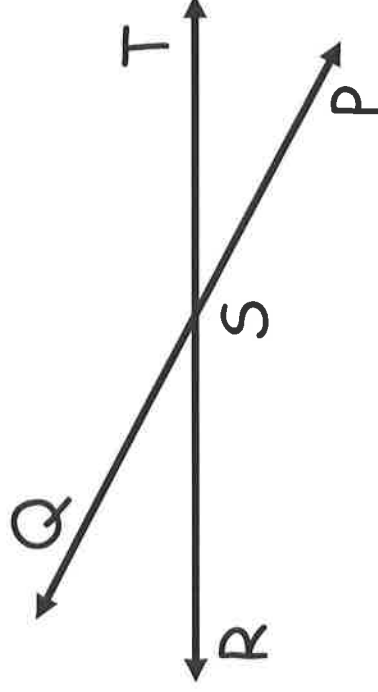
3.



$\angle JKM$  and  $\angle MKL$  are complementary angles.

If  $m\angle JKM = 2x$  and  $m\angle MKL = 6x + 10$ , find the value of  $x$ ,  $m\angle JKM$ ,  $m\angle MKL$  and  $m\angle JKL$ .

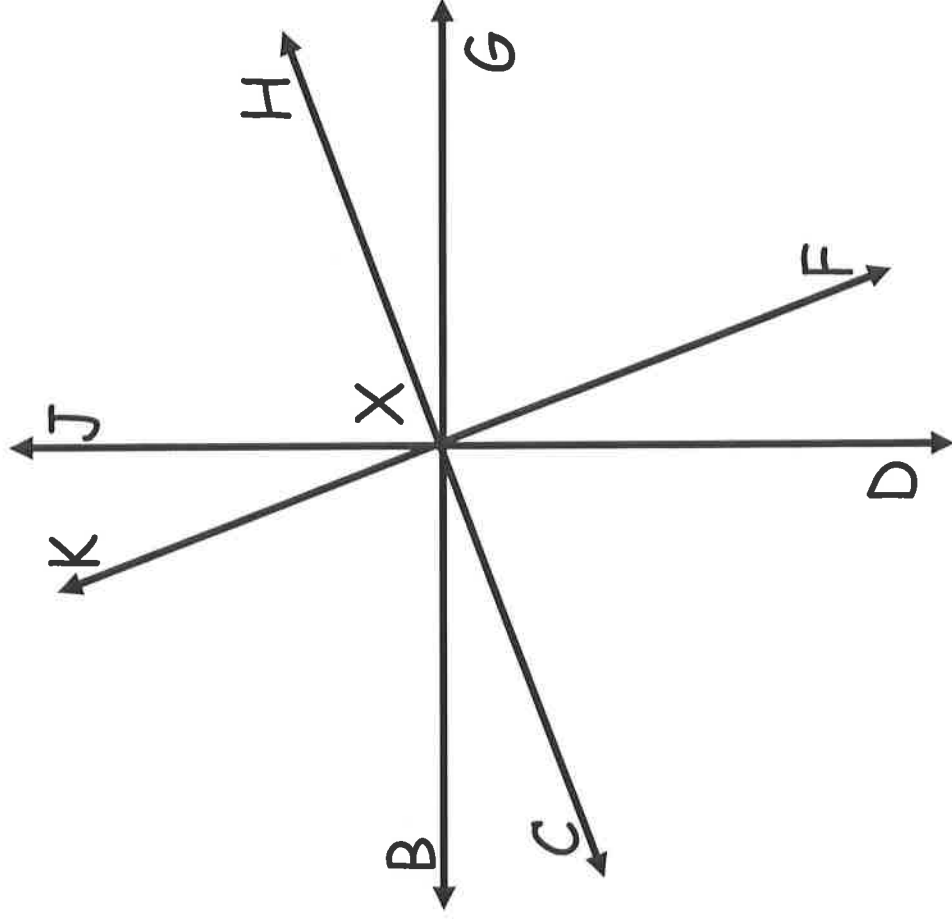
4.



If  $m\angle QSR = 7x - 5$  and  $m\angle TSP = 6x + 3$ , find the value of  $x$ ,  $m\angle QSR$ ,  $m\angle TSP$ ,  $m\angle QST$  and  $m\angle RSP$ .

Station 3 - Complete the diagram on your answer sheet; fill in all missing angle measures; find the measure of each indicated angle measure.

Given:  $\overline{KF} \perp \overline{CH}$ ;  $\overline{JD} \perp \overline{BG}$ ;  $m\angle B XK = 72$



Find each angle measure:

1.)  $m\angle KXJ$

11.)  $m\angle CXJ$

2.)  $m\angle JXH$

12.)  $m\angle JXF$

3.)  $m\angle HXG$

13.)  $m\angle GXC$

4.)  $m\angle GXF$

14.)  $m\angle CXH$

5.)  $m\angle FXD$

15.)  $m\angle FXB$

6.)  $m\angle DXC$

16.)  $m\angle KXD$

7.)  $m\angle CXB$

17.)  $m\angle DXH$

8.)  $m\angle KXH$

18.)  $m\angle CXF$

9.)  $m\angle KXF$

19.)  $m\angle CXH$

10.)  $m\angle FXH$

20.)  $m\angle BXJ$

# Station 4 - Complete each proof.

1. Given:  $WE = ST$

Prove:  $WS = ET$



Statements

Reasons

1. \_\_\_\_\_

1. \_\_\_\_\_

2.  $WE + \underline{\hspace{1cm}} = ST + \underline{\hspace{1cm}}$

2. Addition Property

3.  $WE + ES = \underline{\hspace{1cm}}$

3. \_\_\_\_\_

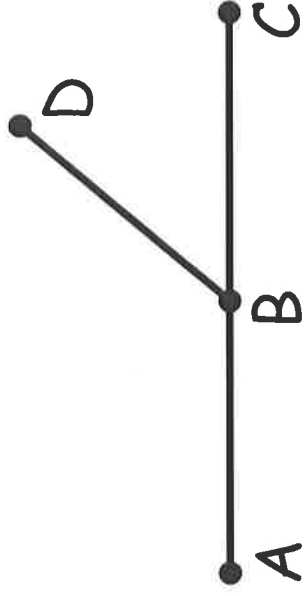
$ST + ES = \underline{\hspace{1cm}}$

4. \_\_\_\_\_

4. \_\_\_\_\_

2. Given:  $AB = BD$ ;  $BC = BD$ .

Prove: B is the midpoint of  $\overline{AC}$ .



Statements

Reasons

1. \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

2. Substitution

3. \_\_\_\_\_

3. \_\_\_\_\_

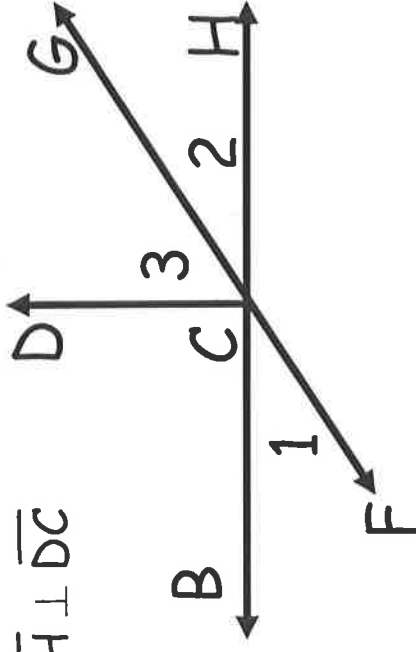
# Station 5 - Complete each proof.

1. Given:  $4x + 3y = 2x + 1$ ;  $y = -2$

Prove:  $x = 3.5$

2. Given:  $\angle 1$  and  $\angle 3$  are complementary.

Prove:  $\overline{BH} \perp \overline{DC}$

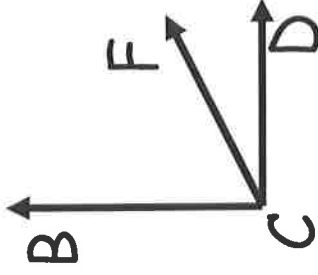


Statements	Reasons
1. _____	1. _____
2. _____	2. _____
3. $m\angle 1 = m\angle 2$	3. _____
4. $m\angle 2 + m\angle 3 = 90$	4. _____
5. $m\angle 2 + m\angle 3 = m\angle DCH$	5. _____
6. _____	6. _____
7. $\angle DCH$ is a right angle	7. _____
8. _____	8. _____

# Station 6 - Complete each proof.

1. Given:  $\overline{BC} \perp \overline{CD}$

Prove:  $\angle BCF$  and  $\angle FCD$  are complementary.



Statements

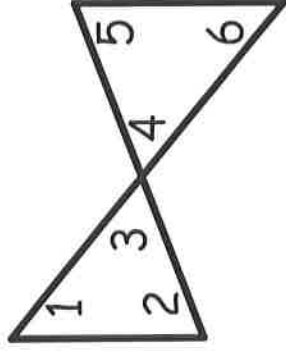
Reasons

1. \_\_\_\_\_
2.  $\angle BCD$  is a right angle
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

1. \_\_\_\_\_
2. \_\_\_\_\_
3. Definition of a right angle
4. Angle Addition Postulate
5. Substitution
6. \_\_\_\_\_

2. Given:  $\angle 2 \cong \angle 3$ ;  $\angle 4 \cong \angle 5$ .

Prove:  $\angle 2 \cong \angle 5$ .



Statements

Reasons

1. \_\_\_\_\_
2. \_\_\_\_\_
3.  $\angle 2 \cong \angle 4$
4. \_\_\_\_\_
5. \_\_\_\_\_

1. Given
2. \_\_\_\_\_
3. \_\_\_\_\_
4. Given.
5. \_\_\_\_\_