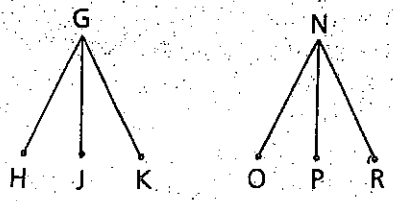
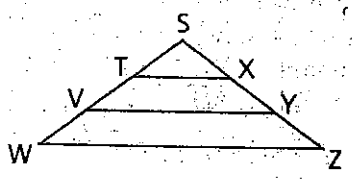


2 Use the given information to find the value of x.

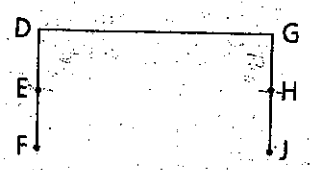
- a $\angle HGJ \cong \angle ONP$;
 \overrightarrow{GJ} and \overrightarrow{NP} are \angle bisectors.
 $\angle HGK = 50^\circ$,
 $\angle ONR = (2x + 10)^\circ$



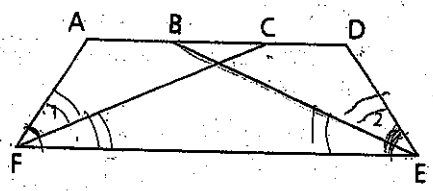
- b $\overline{SW} \cong \overline{SZ}$;
 \overleftrightarrow{TX} and \overleftrightarrow{VY} trisect \overline{SW} and \overline{SZ} .
 $ST = 12$,
 $YZ = x - 4$



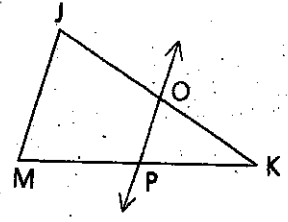
- 3 Given: $\overline{DF} \cong \overline{GJ}$;
 E is the midpoint of \overline{DF} .
 H is the midpoint of \overline{GJ} .
 Prove: $\overline{DE} \cong \overline{GH}$



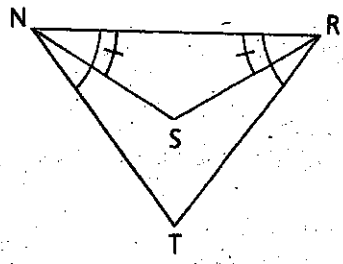
- 4 Given: $\angle AFE \cong \angle DEF$;
 \overrightarrow{FC} bisects $\angle AFE$.
 \overrightarrow{EB} bisects $\angle DEF$.
 Conclusion: $\angle 1 \cong \angle 2$



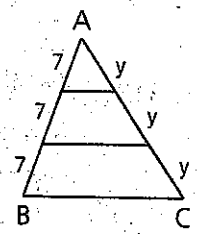
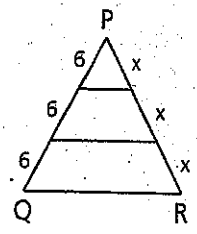
- 5 Given: $\overline{JK} \cong \overline{MK}$;
 \overleftrightarrow{OP} bisects \overline{JK} and \overline{MK} .
 Prove: $\overline{JO} \cong \overline{PK}$



- 6 Given: $\angle TNR \cong \angle TRN$,
 $\angle NRS \cong \angle RNS$
 Conclusion: ?



- 7 a If $\overline{PQ} \cong \overline{PR}$ in $\triangle PQR$, what can we conclude?
 b If $AC = AB + 3$ in $\triangle ABC$, what can we conclude?



8 Given: M is the midpoint of \overline{GH} .



Conclusion: $\overline{GM} \cong \overline{MH}$

9 Given: $(x_1, y_1) = (5, 1)$,

$(x_2, y_2) = (9, 3)$

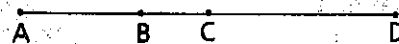
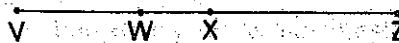
Find: $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

10 Copy the diagram and the proof. Then complete the proof by filling in the missing reasons.

Given: $\overline{VW} \cong \overline{AB}$, $\overline{WX} \cong \overline{BC}$;

X is the midpt. of \overline{VZ} .

C is the midpt. of \overline{AD} .



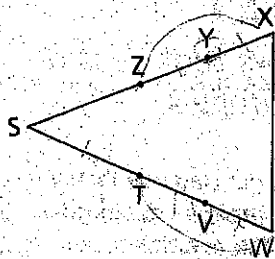
Prove: $\overline{VZ} \cong \overline{AD}$

Statements	Reasons
1 $\overline{VW} \cong \overline{AB}$	1 _____
2 $\overline{WX} \cong \overline{BC}$	2 _____
3 $\overline{VX} \cong \overline{AC}$	3 _____
4 X is the midpt. of \overline{VZ} .	4 _____
5 C is the midpt. of \overline{AD} .	5 _____
6 $\overline{VZ} \cong \overline{AD}$	6 _____

Problem Set B

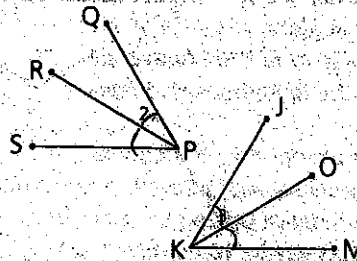
11 Given: $\overline{SZ} \cong \overline{ST}$,
 $\overline{XY} \cong \overline{VW}$,
 Y is the midpt. of \overline{ZX} .
 V is the midpt. of \overline{TW} .

Prove: $\overline{SX} \cong \overline{SW}$



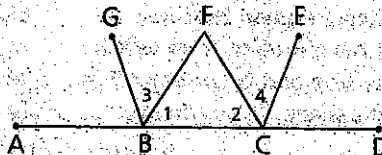
12 Given: \overrightarrow{PR} bisects $\angle QPS$.
 \overrightarrow{KO} bisects $\angle JKM$.
 $\angle 1$ is supp. to $\angle JKM$.
 $\angle 1$ is supp. to $\angle QPS$.

Conclusion: $\angle 2 \cong \angle 3$



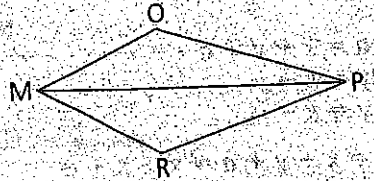
13 Given: $\angle 1 \cong \angle 2$;
 \overrightarrow{BG} bisects $\angle ABF$.
 \overrightarrow{CE} bisects $\angle FCD$.

Prove: $\angle 3 \cong \angle 4$.



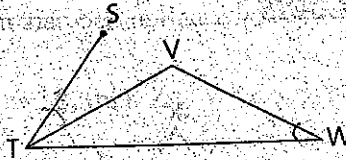
Problem Set A, continued

- 7 Given: $\angle OMP \cong \angle RPM$;
 \overline{MP} bisects $\angle OMR$;
 \overline{PM} bisects $\angle OPR$;
 Prove: $\angle OMR \cong \angle OPR$



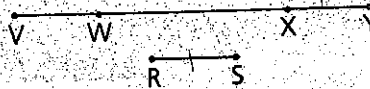
- 8 The complement of an angle is 24° greater than twice the angle.
 Find the measure of the complement.

- 9 $\angle W \cong \angle STV$;
 \overline{TV} bisects $\angle STW$;
 $\angle W = (2x - 5)^\circ$;
 $\angle VTW = (x + 15)^\circ$;
 Find: $m\angle STW$

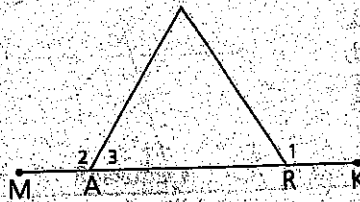


Problem Set B

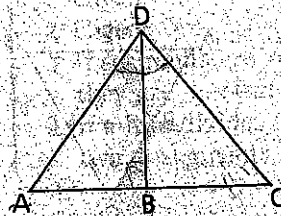
- 10 Given: $\overline{VW} \cong \overline{RS}$;
 $\overline{XY} \cong \overline{RS}$;
 Prove: $\overline{VX} \cong \overline{WY}$



- 11 Given: $\angle 1 \cong \angle 2$
 Conclusion: $\angle 1$ is supp. to $\angle 3$.

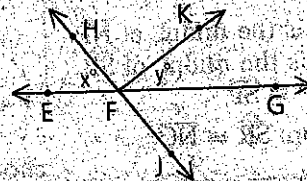


- 12 Given: $\angle A$ is comp. to $\angle ADB$;
 $\angle C$ is comp. to $\angle CDB$;
 \overline{DB} bisects $\angle ADC$;
 Conclusion: $\angle A \cong \angle C$



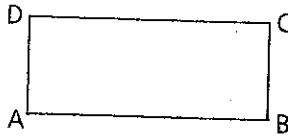
- 13 Find the measures of each of the following angles in terms of x and y .

- a $\angle HEK$
 b $\angle EFK$
 c $\angle HFG$



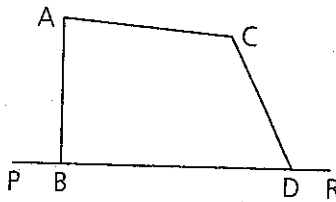
- 14 When one-half the supplement of an angle is added to the complement of the angle, the sum is 120° . Find the measure of the complement.

- 15 Given: $\angle A$ is a right \angle .
 $\angle B$ is a right \angle .
 $\angle B \cong \angle D$
 Prove: $\angle A \cong \angle D$



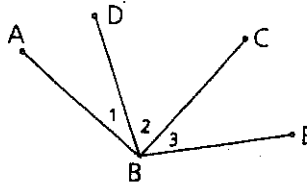
Problem Set C

- 16 Given: $\overline{AB} \perp \overline{PR}$,
 $\overline{AB} \cong \overline{CD}$



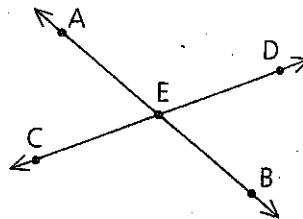
Fool Proof said that since $\overline{AB} \perp \overline{PR}$ and $\overline{AB} \cong \overline{CD}$, he could prove that $\overline{CD} \perp \overline{PR}$ by substitution. What is wrong with Fool's proof?

- 17 Given: $\overline{AB} \perp \overline{BC}$,
 $\angle 1 \cong \angle 3$
 Prove: $\angle DBE$ is a right angle.

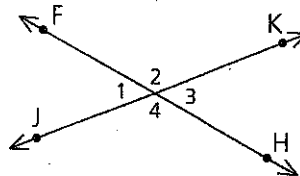


Problem Set D

- 18 \overleftrightarrow{AB} and \overleftrightarrow{CD} intersect at E, and the ratio of $m\angle AEC$ to $m\angle AED$ is 2:3. Write an argument to show that it is impossible for $m\angle DEB$ to be 80.



- 19 If two of the four nonstraight angles formed by the intersection of \overleftrightarrow{FH} and \overleftrightarrow{JK} are selected at random, what is the probability that the two angles are congruent?



- 20 Find all possible values of x if x is the measure of an angle that satisfies the following set of conditions:
 The angle must have a complement, and three fourths of the supplement of the angle must have a complement.