

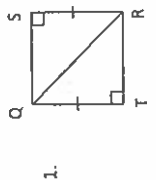
Congruent Figures

List all congruent sides and angles for the given statements.

1. $\triangle ABC \cong \triangle DEF$

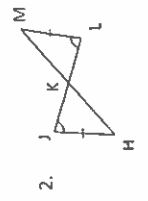
2. $\triangle COW \cong \triangle MAT$

Congruent Triangles For each pair of triangles give the reason for congruency. If they cannot be proved congruent put **NOT**



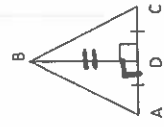
1.

HL



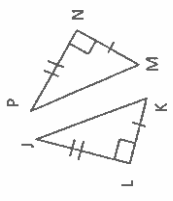
2.

AAS



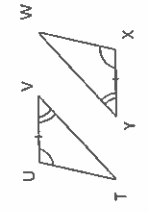
3.

SAS



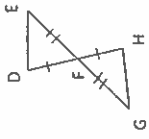
4.

SAS



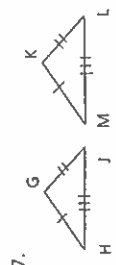
5.

ASA



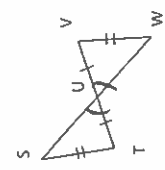
6.

SAS



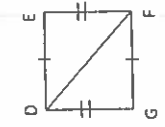
7.

SSS



8.

NOT SAS

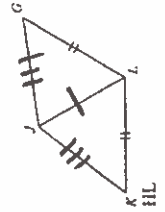


9.

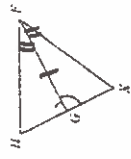
SSS

Congruent Triangles Each pair of triangles is missing information. State what additional piece of information would be needed to prove the triangles are congruent by the reason listed.

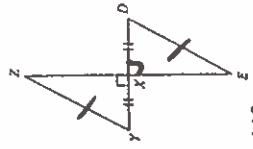
1. SSS



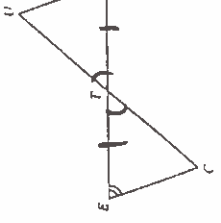
2. SA



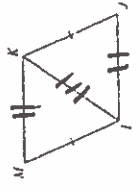
3. HL



4. ASA



6. SSS



Vocabulary

- If two angles form a linear pair, then they are Supplementary
- If two angles are vertical angles, then they are Congruent
- The sum of the angles in a triangle is equal to 180°
- Exterior Angles Theorem: The exterior angle of a triangle is equal to the sum of its two interior angles
- Isosceles Triangle Theorem: If two sides of a triangle are congruent, then two angles are congruent
- Converse of the Isosceles Triangle Theorem: If two angles of a triangle are congruent, then two sides are congruent
- If two lines are parallel, then the corresponding angles are congruent
- If two lines are parallel, then the alternate interior angles are congruent
- If two lines are parallel, then the same-side exterior angles are supplementary



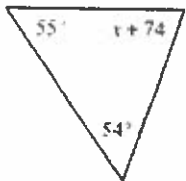
10. If two lines are parallel, then the same-side interior angles are supplementary.

11. If two lines are parallel, then the alternate exterior angles are congruent.

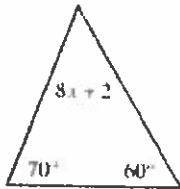
Triangle Sum Theorem

Solve each of the following triangles for x .

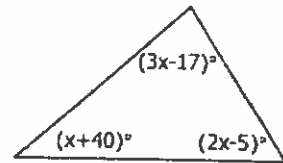
1. $x = \underline{-3}$



2. $x = \underline{6}$

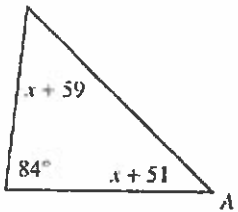


3. $x = \underline{27}$

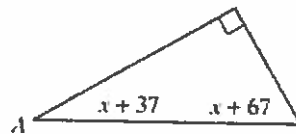


For each of the triangles below, solve for x and state the measure of angle A:

4. $x = \underline{-7}$
 $m\angle A = \underline{44^\circ}$

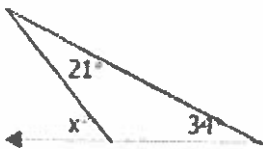


5. $x = \underline{-7}$
 $m\angle A = \underline{30^\circ}$

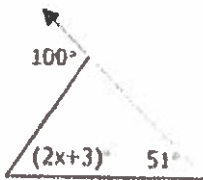


Exterior Angle Theorem

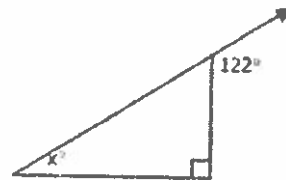
1. $x = \underline{55^\circ}$



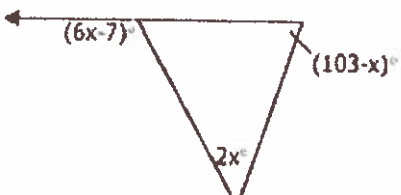
2. $x = \underline{23}$



3. $x = \underline{32^\circ}$



4. $x = \underline{22}$



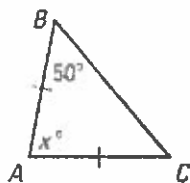
$$\begin{aligned} 6x - 7 &= 2x + 103 - x \\ 6x - 7 &= \cancel{2x} + 103 - \cancel{x} \\ -1x - 7 &= 103 \\ \underline{+7 \quad +7} & \\ 5x - 7 &= 103 \end{aligned}$$

$$\begin{aligned} \frac{110}{5} \\ \hline v = 22 \end{aligned}$$

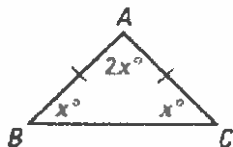
Isosceles Triangle Theorem

each of the following questions, find the requested information:

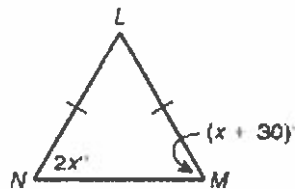
1. $x = 80^\circ$



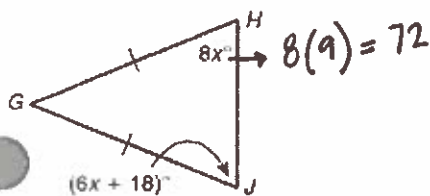
2. $x = 45^\circ$



3. $m \angle M = 60^\circ$

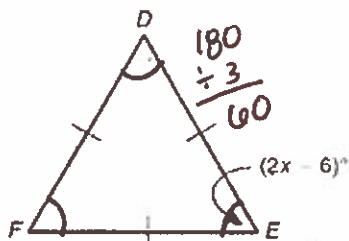


4. $m \angle H = 72^\circ$



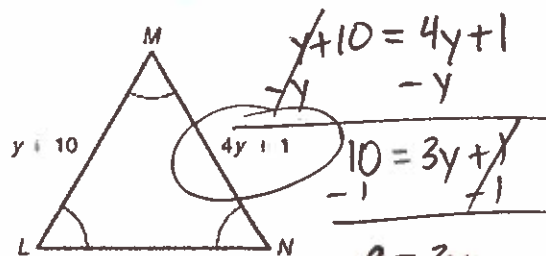
$$\begin{aligned} 8x &= 6x + 18 \\ -6x & \quad -6x \\ \hline 2x &= 18 \\ \frac{2x}{2} &= \frac{18}{2} \quad \boxed{x=9} \end{aligned}$$

5. $x = 33$



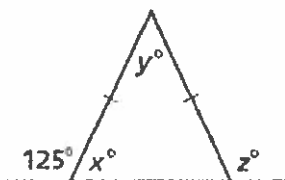
$$\begin{aligned} 2x - 6 &= 60 \\ +6 & \quad +6 \\ \hline 2x &= 66 \\ \frac{2x}{2} &= \frac{66}{2} \quad x=33 \end{aligned}$$

6. $MN = 13$

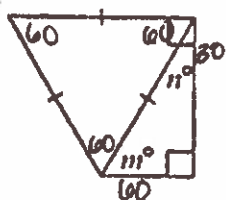


$$\begin{aligned} y + 10 &= 4y + 1 \\ -y & \quad -y \\ \hline 10 &= 3y + 1 \\ -1 & \quad -1 \\ \hline 9 &= 3y \\ \frac{9}{3} &= \frac{3y}{3} \\ \boxed{y=3} \end{aligned}$$

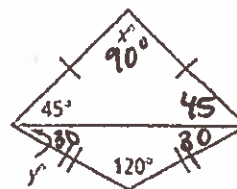
7. $x = 55^\circ$ $y = 70^\circ$
 $z = 125^\circ$



8. $m = 60^\circ$ $n = 30^\circ$



9. $x = 90^\circ$ $y = 30^\circ$



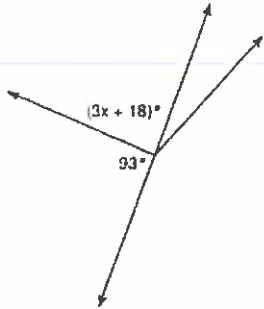
$$\begin{aligned} 180 & \\ -120 & \\ \hline 60 & \\ \div 2 &= 30 \end{aligned}$$

Parallel Lines and Angle Relationships

For each of the following, state the angle relationships and then find the missing value:

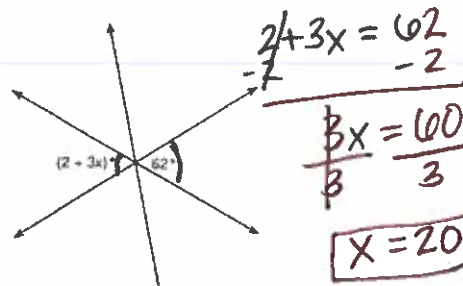
1. Type of Angles: **Supplementary**

$x = \underline{23}$



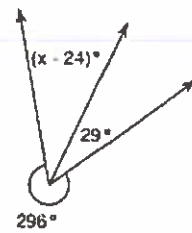
2. Type of Angles: **Vertical Angles**
↓
congruent

$x = \underline{20}$



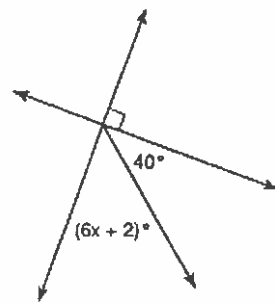
3. Type of Angles: **No type**

$x = \underline{59}$



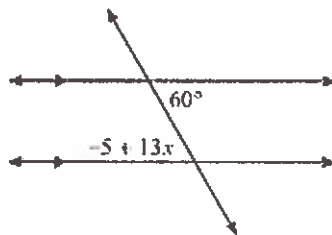
4. Type of Angles: **Complementary**

$x = \underline{8}$



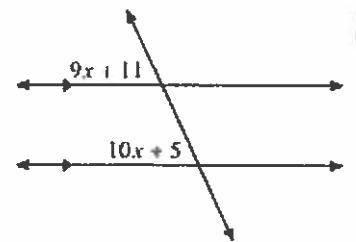
5. Type of Angles: **Alt. Interior**

$x = \underline{5}$



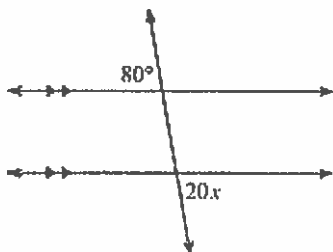
6. Type of Angles: **Corresponding**

$x = \underline{6}$



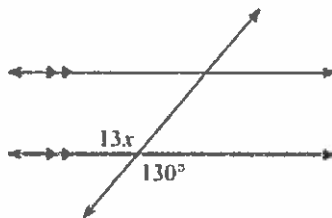
7. Type of Angles: **Alt. Exterior**

$x = \underline{4}$



8. Type of Angles: **Vertical**

$x = \underline{10}$



9. Type of Angles: **S.S. Interior**

$x = \underline{8}$

