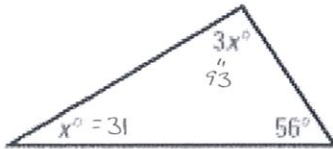


### Chapter 4 Questions

Find the value of  $x$  AND classify the triangle by its angles.

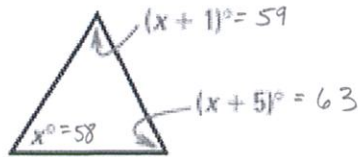
30)



$$\begin{aligned} x + 3x + 56 &= 180 \\ 4x &= 124 \\ x &= 31 \end{aligned}$$

Obtuse

31)

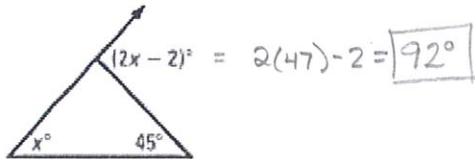


$$\begin{aligned} x + x + 1 + x + 5 &= 180 \\ 3x + 6 &= 180 \\ 3x &= 174 \\ x &= 58 \end{aligned}$$

Acute

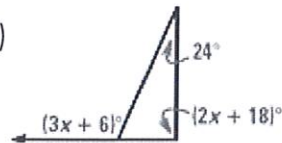
Find the measure of the exterior angle shown.

32)



$$\begin{aligned} x + 45 &= 2x - 2 \\ 47 &= x \end{aligned}$$

33)



$$\begin{aligned} 24 + 2x + 18 &= 3x + 6 \\ 2x + 42 &= 3x + 6 \\ 36 &= x \end{aligned}$$

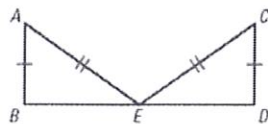
$$3(36) + 6 = 114^\circ$$

For problems 30-34 write a two-column proof to prove the triangles congruent by one of the following methods: SSS, ASA, SAS, AAS, or HL

34)

**GIVEN**  $\overline{AE} \cong \overline{CE}$ ,  $\overline{AB} \cong \overline{CD}$ ,  
E is the midpoint of  $\overline{BD}$ .

**PROVE**  $\triangle EAB \cong \triangle ECD$



$$\begin{aligned} \textcircled{1} \overline{AE} &\cong \overline{CE} \quad \overline{AB} \cong \overline{CD} \\ &E \text{ is mdpt of } \overline{BD} \end{aligned}$$

$$\textcircled{2} \overline{BE} \cong \overline{ED}$$

$$\textcircled{3} \triangle EAB \cong \triangle ECD$$

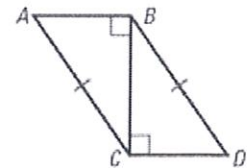
$\textcircled{1}$  Given

$\textcircled{2}$  Def of Midpt

$\textcircled{3}$  SSS

35) **Given:** Diagram

**Prove:**  $\triangle ABC \cong \triangle DCB$



$$\begin{aligned} \textcircled{1} \overline{AC} &\cong \overline{BD} \\ \triangle ABC \text{ and } \triangle DCB \\ &\text{are Right } \triangle\text{'s} \end{aligned}$$

$$\textcircled{2} \overline{BC} \cong \overline{BC}$$

$$\textcircled{3} \triangle ABC \cong \triangle DCB$$

$\textcircled{1}$  Given

$\textcircled{2}$  Refl.

$\textcircled{3}$  HL

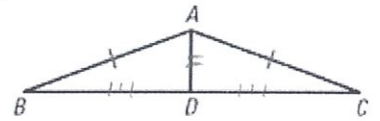
36) **GIVEN:** Z is the midpoint of  $\overline{PY}$  and  $\overline{XQ}$

**PROVE:**  $\triangle XYZ \cong \triangle QPZ$



37) **GIVEN**  $\overline{AB} \cong \overline{AC}$ ,  $\overline{AD}$  bisects  $\overline{BC}$ .

**PROVE**  $\triangle ABD \cong \triangle ACD$

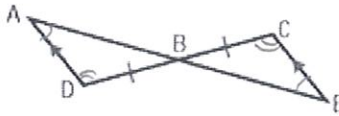


- ① Z is mdpt of  $\overline{PY}$  and  $\overline{XQ}$       ① Given
- ②  $\overline{PZ} \cong \overline{ZY}$   
 $\overline{XZ} \cong \overline{ZQ}$       ② Def of Midpt
- ③  $\angle XZY \cong \angle PZQ$       ③ Vert  $\angle$ 's  $\cong$  Thm
- ④  $\triangle XYZ \cong \triangle QPZ$       ④ SAS

- ①  $\overline{AB} \cong \overline{AC}$   
 $\overline{AD}$  bisects  $\overline{BC}$       ① Given
- ②  $\overline{BD} \cong \overline{DC}$       ② Def of seg. bis.
- ③  $\overline{AD} \cong \overline{AD}$       ③ Refl.
- ④  $\triangle ABD \cong \triangle ACD$       ④ SSS

38) **Given:**  $\overline{AB} \parallel \overline{CE}$ ,  $\overline{BD} \cong \overline{BC}$

**Prove:**  $\triangle ABD \cong \triangle EBC$



- ①  $\overline{AB} \parallel \overline{CE}$   
 $\overline{BD} \cong \overline{BC}$       ① Given
- ②  $\angle A \cong \angle E$   
 $\angle D \cong \angle C$       ② Alt Int  $\angle$ 's Thm
- ③  $\triangle ABD \cong \triangle EBC$       ③ AAS