

$$1. 6x + 20 + 4x + 10 = 180$$

$$10x + 30 = 180$$

$$10x = 150$$

$$x = 15$$

$$\angle ADB = \frac{1}{2}(4(15) + 10)$$

$$= 35^\circ$$

$$\widehat{BC} = 180^\circ - 62^\circ = 118^\circ$$

$$\widehat{AB} = 4(15) + 10$$

$$= 70$$

$$2. 46(2) + (11)(2) = 114$$

$$360 - 114 = 246$$

$$9x + 3 + 7x - 7 = 246$$

$$16x - 10 = 246$$

$$16x = 256$$

$$x = 16$$

$$\widehat{AD} = 92^\circ \quad \widehat{BC} = 22$$

$$3. 9x + 2 = 56$$

$$9x = 54$$

$$x = 6$$

$$\angle CAB = \frac{1}{2}(56)$$

$$= 28$$

$$\angle CDB = 56^\circ$$

$$4. 4x + 22 + 9x + 2 = 180$$

$$13x + 24 = 180$$

$$13x = 156$$

$$x = 12$$

$$\angle ACB = \frac{1}{2}(4(12) + 22)$$

$$= \frac{1}{2}(70)$$

$$= 35^\circ$$

$$5. \frac{53^\circ}{360^\circ} \cdot 260\pi$$

$$11.794$$

$$6. 360 - 215 = 145$$

$$\frac{145}{360} \cdot 32\pi$$

$$40.49$$

$$\frac{215}{360} (\pi r^2)$$

$$480.314 \text{ sq. units}$$

$$7. \frac{88}{360} \cdot 64\pi$$

$$49.149$$

8. 1. $\overline{AB} \cong \overline{AC}$ 1. Given
 2. \overline{AD} bisects \widehat{BC} 2. Given
 3. $\widehat{BD} \cong \widehat{DC}$ 3. Definition. segment bisector.
 4. $\overline{AD} \cong \overline{AD}$ 4. Reflexive Property
 5. $\triangle ABD \cong \triangle ACD$ 5. SSS

9. $\angle A \cong \angle E$
 $\overline{AB} = \overline{BE}$
 $\angle B$ is in both $\triangle s$
 so the $\triangle s$ are \cong
 by ASA
 $\overline{AD} \cong \overline{EC}$ because CPCTC