#1

| | STATEMENTS | JUSTIFICATIONS |
|---|---|---|
| | ① $\overline{BD}$ BISECTS $\angle ADC$, $\overline{BD} \perp \overline{CA}$ | ① GIVEN |
| A | ② $\angle ADB \cong \angle CDB$ | ② BISECTED $\angle$s ARE $\cong$ |
| S | ③ $\overline{BD} \cong \overline{BD}$ | ③ REFLEXIVE PROP. (SAME SIDE) |
| A | ④ $\angle ABD \cong \angle CBD$ | ④ $\perp$ LINES FORM $\cong$ 90° $\angle$s |
| | ⑤ $\triangle ADB \cong \triangle CDB$ | ⑤ ASA CONGRUENCE |

#s 2-6 ARE SIMILAR

#7

| | STATEMENTS | REASONS |
|---|---|---|
| | ① G-E-H, K-E-F, $\overline{GH}$ & $\overline{FK}$ BISECT EACH OTHER | ① GIVEN |
| S | ② $\overline{GE} \cong \overline{HE}$ | ② BISECTED SEGMENTS ARE $\cong$ |
| A | ③ $\angle GEK \cong \angle HEF$ | ③ VERTICAL $\angle$s ARE $\cong$ |
| S | ④ $\overline{KE} \cong \overline{FE}$ | ④ BISECTED SEGMENTS ARE $\cong$ |
| | ⑤ $\triangle GEK \cong \triangle HEF$ | ⑤ SAS CONGRUENCE |

#8s 8 & 9 ARE SIMILAR

* NOTE: FOR THESE PROOFS, THERE IS OFTEN MORE THAN ONE CORRECT WAY TO WRITE THEM *

(2)

| STATEMENTS | JUSTIFICATIONS |
|---|---|
| ① $\overline{BD}$ BISECTS $\angle ABC$ | ① GIVEN |
| S $\overline{AD} = \overline{DC}$ | |
| A ② $\angle ADB \cong \angle CDB$ | ② BISECTED $\angle$S ARE $\cong$ |
| S ③ $\overline{BD} \cong \overline{BD}$ | ③ REFLEXIVE PROP. (SAME SIDE) |
| ④ $\triangle ADB \cong \triangle CDB$ | ④ SAS CONGRUENCE |

NOTE: ASA COULD ALSO HAVE BEEN USED

(3)

| STATEMENTS | REASONS |
|---|---|
| ① $\overline{BD}$ BISECTS $\overline{AC}$ $\overline{BD} \perp \overline{CA}$ | ① GIVEN |
| S ② $\overline{AB} \cong \overline{CB}$ | ② BISECTED SEGMENTS ARE $\cong$ |
| A ③ $m\angle ABD = m\angle CBD$ | ③ $\perp$ LINES FORM = 90° $\angle$S |
| S ④ $\overline{BD} \cong \overline{BD}$ | ④ REFLEXIVE PROP (SAME SIDE) |
| ⑤ $\triangle ADB \cong \triangle CDB$ | ⑤ SAS CONGRUENCE |

(4)

| STATEMENTS | JUSTIFICATIONS |
|---|---|
| ① $\overline{BD}$ BISECTS $\angle ADC$ | ① GIVEN |
| A $\angle A \cong \angle C$ | |
| A ② $m\angle ADB = m\angle CDB$ | ② BISECT $\angle$S HAVE = MEASURES |
| S ③ $\overline{BD} \cong \overline{BD}$ | ③ REFLEXIVE PROP (SAME SIDE) |
| ④ $\triangle ADB \cong \triangle CDB$ | ④ AAS CONGRUENCE |

| | (S) ⑤ STATEMENTS | (J) JUSTIFICATIONS |
|---|---|---|
| | ① $\overline{BD} \perp \overline{CA}$ | ① GIVEN |
| A | ② $\angle ABD \cong \angle CBD$ | ② ⊥ LINES FORM $\cong$ ∠s (90°) |
| (H) S | ③ $\overline{AD} \cong \overline{DC}$ | ③ GIVEN |
| (L) S | ④ $\overline{BD} \cong \overline{BD}$ | ④ REFLEXIVE PROP. (SAME SIDE) |
| | ⑤ $\triangle ADB \cong \triangle CDB$ | ⑤ HL CONGRUENCE |

⑥

| | S | J |
|---|---|---|
| A | ① $\angle A \cong \angle C$<br>$\overline{BD} \perp \overline{CA}$ | ① GIVEN |
| A | ② $\angle ABD \cong \angle CBD$ | ② ⊥ LINES FORM $\cong$ ∠s (90°) |
| S | ③ $\overline{BD} \cong \overline{BD}$ | ③ REFLEXIVE PROP. (SAME SIDE) |
| | ④ $\triangle ADB \cong \triangle CDB$ | ④ AAS TRIANGLE CONGRUENCE |

⑧

| | S | J |
|---|---|---|
| | ① G-E-H, K-E-F<br>$\overline{GH}$ BISECTS $\overline{FK}$<br>$\overline{GK} \parallel \overline{FH}$ | ① GIVEN |
| A | ② $\angle G \cong \angle H$ | ② WHEN LINES ∥ ALTERNATE INTERIOR ∠s ARE $\cong$ |
| S | ③ $\overline{KE} \cong \overline{FE}$ | ③ BISECTED SEGMENTS ARE $\cong$ |
| A | ④ $\angle GEK \cong \angle HEF$ | ④ VERTICAL ∠s ARE $\cong$ |
| | ⑤ $\triangle GEK \cong \triangle HEF$ | ⑤ ASA CONGRUENCE |

| ⑨ STATEMENTS | REASONS |
| --- | --- |
| ① $G-E-H$, $K-E-F$, $\overline{GK} \parallel \overline{FH}$, | ① GIVEN |
| A ② $\angle G \cong \angle H$ | ② WHEN LINES $\parallel$, ALT. INT. $\angle$S ARE $\cong$ |
| S ③ $\overline{GK} \cong \overline{FH}$ | ③ GIVEN |
| A ④ $\angle K \cong \angle F$ | ④ WHEN LINES $\parallel$, ALT. INT. $\angle$S ARE $\cong$ |
| ⑤ $\triangle GEK \cong \triangle HEF$ | ⑤ ASA CONGRUENCE |