1. $\triangle PQR \cong \triangle VXW$

2. $\triangle ACB \cong \triangle EFD$

3. $\overline{RS}$

4. $\angle N$ and $\angle O$

5. **a.** Reflexive

   b. ASA

6. $\angle BAC \cong \angle DAC$ (given)

   $\overline{AC} \perp \overline{BD}$ (given)

   $\overline{AC} \cong \overline{AC}$ (Reflex. Prop. $\cong$)

   $\angle DCA \cong \angle BCA$ (rt. $\angle$s are $\cong$)

   $\triangle ABC \cong \triangle ADC$ (ASA)

7. $\overline{QR} \cong \overline{TS}$ (given)

   $\overline{QR} \parallel \overline{ST}$ (given)

   $\angle TQR \cong \angle QTS$ (Alt. Int. $\angle$s Thm.)

   $\angle QTR \cong \angle TQS$ (Alt. Int. $\angle$s Thm.)

   $\triangle QRT \cong \triangle TSQ$ (AAS)

8. **a.** $\angle UWV$

   b. $\overline{UW}$

   c. right

   d. Reflexive

9. It is given that $\angle UWT$ and $\angle UWV$ are right $\angle$s and that $\angle T \cong \angle V$. $\angle UWT \cong \angle UWV$ since all right $\angle$s are congruent. $\overline{UW} \cong \overline{UW}$ by the Reflexive Property of Congruence, so $\triangle UWT \cong \triangle UWV$ by AAS.

10. a. Vert. $\angle$s are $\cong$.

   b. Given

   c. $\overline{TQ} \cong \overline{QR}$

   d. AAS

11. 1. $\angle V \cong \angle Y$ (given)

   2. $\overline{WZ}$ bisects $\angle VWY$ (given)

   3. $\overline{WZ} \cong \overline{WZ}$ (Refl. Prop. $\cong$)

   4. $\triangle VWZ \cong \triangle YWZ$ (AAS)

12. $\overline{PQ} \perp \overline{QS}, \overline{RS} \perp \overline{QS}$ (given)

   T is the midpoint of $\overline{PR}$ (given)

   $\overline{PT} \cong \overline{RT}$ (def. of midpt.)

   $\angle PTQ \cong \angle RTS$ (vert. $\angle$s $\cong$)

   $\triangle PQT \cong \triangle RST$ (AAS)

13. $\triangle PMO \cong \triangle NMO$; ASA   **14.** $\triangle UTS \cong \triangle RST$; AAS

15. $\triangle ZVY \cong \triangle WVY$; AAS   **16.** D

17. Yes; if 2 $\angle$s of a $\triangle$ are $\cong$ to 2 $\angle$s of another $\triangle$, then the 3rd $\angle$s are $\cong$. So, an AAS proof can be rewritten as an ASA proof.

18. $\angle FDE \cong \angle GHI$; $\angle DFE \cong \angle HGI$

19. No; you also need one pair of corres. sides $\cong$.

20. $\triangle MON \cong \triangle QOP$ by AAS, since $\angle MON$ and $\angle QOP$ are $\cong$ vert. $\angle$s.
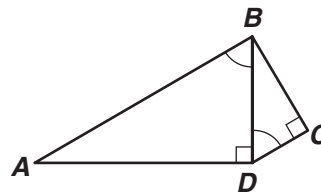
21. $\triangle FGJ \cong \triangle HJG$ by AAS, since $\angle FGJ \cong \angle HJG$ because when lines are $\parallel$, then alt. int. $\angle$s are $\cong$, and $\overline{GJ} \cong \overline{GJ}$ by the Reflexive Prop. of $\cong$.

22. $\triangle AEB \cong \triangle BCD$ by ASA, since $\angle EAB \cong \angle DBC$ because $\parallel$ lines have $\cong$ corr. $\angle$s.

23. $\triangle BDH \cong \triangle FDH$ by ASA since $\angle BDH \cong \angle FDH$ by def. of $\angle$ bis. and $\overline{DH} \cong \overline{DH}$ by the Reflexive Prop. of $\cong$.

24.
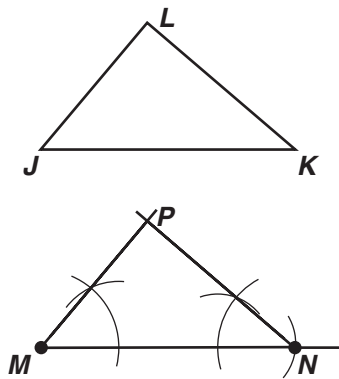
25. $\overline{AB} \parallel \overline{DC}, \overline{AD} \parallel \overline{BC}$ (Given), $\angle DAC \cong \angle BCA$ (Alt. Int. $\angle$s Thm.), $\angle ACD \cong \angle CAB$ (Alt. Int. $\angle$s Thm.), $\overline{AC} \cong \overline{AC}$ (Reflexive Prop.), so $\triangle ABC \cong \triangle CDA$ by ASA.

26. Answers may vary. Sample:

27. a. Check students' work.

b. Answers may vary; most likely ASA.

28. $\triangle AEB \cong \triangle CED, \triangle BEC \cong \triangle DEA, \triangle ABC \cong \triangle CDA, \triangle BAD \cong \triangle DCB$

29. $\triangle AEB \cong \triangle CED, \triangle BEC \cong \triangle DEA, \triangle ABC \cong \triangle CDA,$
$\triangle ABD \cong \triangle DCA, \triangle BAD \cong \triangle DCB, \triangle ABD \cong \triangle DCB,$
$\triangle CBA \cong \triangle DAB, \triangle BCD \cong \triangle ADC$

30. They are $\angle$ bisectors; ASA.

31. $\frac{13}{20}$

32.