

Practice 4.1

1. $m\angle 1 = 110; m\angle 2 = 120$ 2. $m\angle 3 = 90; m\angle 4 = 135$ 3. $m\angle 5 = 140; m\angle 6 = 90; m\angle 7 = 40; m\angle 8 = 90$
 4. $\overline{CA} \cong \overline{JS}, \overline{AT} \cong \overline{SD}, \overline{CT} \cong \overline{JD}$ 5. $\angle C \cong \angle J, \angle A \cong \angle S, \angle T \cong \angle D$ 6. $\overline{WZ} \cong \overline{JM}, \overline{WX} \cong \overline{JK}, \overline{XY} \cong \overline{KL}, \overline{ZY} \cong \overline{ML}$ 7. $\angle W \cong \angle J, \angle X \cong \angle K, \angle Y \cong \angle L, \angle Z \cong \angle M$ 8. Yes; $\angle GHJ \cong \angle IHJ$ by Theorem 4-1 and by the Reflexive Property of \cong . Therefore, $\triangle GHJ \cong \triangle IHJ$ by the definition of \cong triangles. 9. No; $\angle QSR \cong \angle TSV$ because vertical angles are congruent, and $\angle QRS \cong \angle TVS$ by Theorem 4-1, but none of the sides are necessarily congruent. 10a. Given 10b. Vertical angles are \cong . 10c. Theorem 4-1 10d. Given 10e. Definition of \cong triangles

Apr 5-1:06 PM

Practice 4.2

1. $\triangle ADB \cong \triangle CDB$ by SAS 2. not possible 3. not possible
 4. $\triangle TUS \cong \triangle XWV$ by SSS 5. not possible
 6. $\triangle DEC \cong \triangle GHF$ by SAS 7. $\triangle MKL \cong \triangle KMJ$ by SAS
 8. $\triangle PRN \cong \triangle PRQ$ by SSS 9. not possible
 10. $\angle C$ 11. \overline{AB} and \overline{BC} 12. $\angle A$ and $\angle B$
 13. \overline{AC} 14a. Given 14b. Reflexive Property of Congruence 14c. SAS Postulate
 15.

<i>Statements</i>	<i>Reasons</i>
1. $\overline{EF} \cong \overline{FG}, \overline{DF} \cong \overline{FH}$	1. Given
2. $\angle DFE \cong \angle HFG$	2. Vertical \angle s are \cong .
3. $\triangle DFE \cong \triangle HFG$	3. SAS Postulate

Apr 5-1:11 PM

1. not possible 2. ASA Postulate 3. AAS Theorem
 4. AAS Theorem 5. not possible 6. not possible
 7. ASA Postulate 8. not possible 9. AAS Theorem

10. *Statements*
 1. $\angle K \cong \angle M, \overline{KL} \cong \overline{ML}$
 2. $\angle JLK \cong \angle PLM$
 3. $\triangle JKL \cong \triangle PML$

Reasons
 1. Given
 2. Vertical \angle s are \cong .
 3. ASA Postulate

11. $\angle Q \cong \angle S$
Given

$\angle TRS \cong \angle RTQ$
Given

$\overline{RT} \cong \overline{TR}$
Reflexive Property of \cong

$\triangle QRT \cong \triangle STR$
AAS Theorem

12. $\overline{BC} \cong \overline{EF}$
 13. $\angle KHJ \cong \angle HKG$ or $\angle KJH \cong \angle HGK$
 14. $\angle NLM \cong \angle NPQ$

Practice 4.3

Apr 5-1:12 PM

Practice 4.6

1. *Statements*
 1. $\overline{AB} \perp \overline{BC}, \overline{ED} \perp \overline{FE}$
 2. $\angle B, \angle E$ are right \angle s.
 3. $\overline{AC} \cong \overline{FD}, \overline{AB} \cong \overline{ED}$
 4. $\triangle ABC \cong \triangle DEF$

2. *Statements*
 1. $\angle P, \angle R$ are right \angle s.
 2. $\overline{PS} \cong \overline{QR}$
 3. $\overline{SQ} \cong \overline{QS}$
 4. $\triangle PQS \cong \triangle RSQ$

Reasons
 1. Given
 2. Perpendicular lines form right \angle s.
 3. Given
 4. HL Theorem

Reasons
 1. Given
 2. Given
 3. Reflexive Property of \cong
 4. HL Theorem

3. $\angle MJN$ and $\angle MJK$ are right \angle s.
Perpendicular lines form right \angle s.

$\overline{MN} \cong \overline{MK}$
Given

$\overline{MJ} \cong \overline{MJ}$
Reflexive Property of \cong

$\triangle MJN \cong \triangle MJK$
HL Theorem

Apr 5-1:17 PM

4. $\overline{GI} \cong \overline{JI}$
Given

$\overline{HI} \cong \overline{HI}$
Reflexive Property of \cong

$\triangle IHG \cong \triangle IHJ$
HL Theorem

$\angle GHI \cong \angle JHI$
Given

$\angle GHI$ and $\angle JHI$
are right \angle s.
Theorem 2-5

$m\angle GHI + m\angle JHI = 180$
Angle Addition Postulate

5. $\overline{RS} \cong \overline{VW}$ 6. none 7. $m\angle C$ and $m\angle F = 90$
 8. $\overline{GH} \cong \overline{JH}$ 9. $\overline{LN} \cong \overline{PR}$ 10. $\overline{ST} \cong \overline{UV}$ or
 $\overline{SV} \cong \overline{UT}$ 11. $m\angle A$ and $m\angle X = 90$ 12. $m\angle F$
 and $m\angle D = 90$ 13. $\overline{GI} \perp \overline{JH}$

Apr 5-1:19 PM

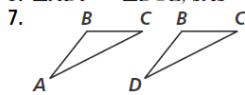
Practice 4.4

1. \overline{BD} is a common side, so $\triangle ADB \cong \triangle CDB$ by SAS, and $\angle A \cong \angle C$ by CPCTC.
2. \overline{FH} is a common side, so $\triangle FHE \cong \triangle HFG$ by ASA, and $\overline{HE} \cong \overline{FG}$ by CPCTC.
3. $\triangle KLJ \cong \triangle PMN$ by ASA, so $\angle K \cong \angle P$ by CPCTC.
4. \overline{QS} is a common side, so $\triangle QTS \cong \triangle SRQ$ by AAS.
5. \overline{VX} is a common side, so $\triangle UVX \cong \triangle WVX$ by SSS, and $\angle U \cong \angle W$ by CPCTC.
6. $\angle ZAY$ and $\angle CAB$ are vertical angles, so $\triangle ABC \cong \triangle AYZ$ by ASA. $\overline{ZA} \cong \overline{AC}$ by CPCTC.
7. \overline{EG} is a common side, so $\triangle DEG \cong \triangle FEG$ by SAS, and $\overline{FG} \cong \overline{DG}$ by CPCTC.
8. $\angle JKH$ and $\angle LKM$ are vertical angles, so $\triangle HJK \cong \triangle MLK$ by AAS, and $\overline{JK} \cong \overline{KL}$ by CPCTC.
9. \overline{PR} is a common side, so $\triangle PNR \cong \triangle RQP$ by SSS, and $\angle N \cong \angle Q$ by CPCTC.
10. First, show that $\angle ACB$ and $\angle ECD$ are vertical angles. Then, show $\triangle ABC \cong \triangle EDC$ by ASA. Last, show $\angle A \cong \angle E$ by CPCTC.
11. First, show \overline{FH} as a common side. Then, show $\triangle JFH \cong \triangle GHF$ by SAS. Last, show $\overline{FG} \cong \overline{JH}$ by CPCTC.

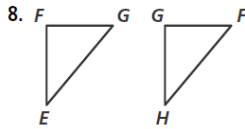
Apr 5-1:13 PM

Practice 4.7

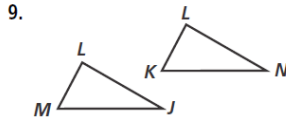
1. $\triangle ZWX \cong \triangle YXW$; SAS
 2. $\triangle ABC \cong \triangle DCB$; ASA
 3. $\triangle EJG \cong \triangle FKH$; ASA
 4. $\triangle LNP \cong \triangle LMO$; SAS
 5. $\triangle ADF \cong \triangle BGE$; SAS
 6. $\triangle UVY \cong \triangle VUX$; ASA



common side: \overline{BC}



common side: \overline{FG}



common angle: $\angle L$

10. Sample:

Statements

1. $\overline{AX} \cong \overline{AY}$
2. $\overline{CX} \perp \overline{AB}, \overline{BY} \perp \overline{AC}$
3. $m\angle CXA$ and $m\angle BYA = 90$
4. $\angle A \cong \angle A$

Reasons

1. Given
2. Given
3. Perpendicular lines form right \angle s.
4. Reflexive Property of \cong
5. ASA Postulate

11. Sample: Because $\overline{FH} \cong \overline{GE}$, $\angle HFG \cong \angle EGF$, and $\overline{FG} \cong \overline{GF}$, then $\triangle FGE \cong \triangle GFH$ by SAS. Thus, $\overline{FE} \cong \overline{GH}$ by CPCTC and $\overline{EH} \cong \overline{HE}$, then $\triangle GEH \cong \triangle FHE$ by SSS.

Apr 5-1:22 PM

Practice 4.5

1. $x = 35; y = 35$
2. $x = 80; y = 90$
3. $t = 150$
4. $r = 45; s = 45$
5. $x = 55; y = 70; z = 125$
6. $a = 132; b = 36; c = 60$
7. $x = 6$
8. $a = 30; b = 30; c = 75$
9. $z = 120$
10. $\overline{AD}; \angle D \cong \angle F$
11. $\overline{GA}; \angle ACG \cong \angle AGC$
12. $\overline{KJ}; \angle KIJ \cong \angle KJI$
13. $\overline{DC}; \angle CDE \cong \angle CED$
14. $\overline{BA}; \angle ABJ \cong \angle AJB$
15. $\overline{CB}; \angle BCH \cong \angle BHC$
16. 130
17. 65
18. 130
19. 90
20. $x = 70; y = 55$
21. $x = 70; y = 20$
22. $x = 45; y = 45$

Apr 5-1:24 PM

Practice 5.2

1. \overline{WY} is the perpendicular bisector of \overline{XZ} .
2. 4
3. 7.5
4. 9
5. right triangle
6. 5
7. 17
8. 17
9. equidistant
10. acute, isosceles triangle
11. 3.5
12. 21
13. 21
14. right triangle
15. \overrightarrow{JP} is the bisector of $\angle L J N$.
16. 9
17. 45
18. 45
19. 14
20. Sample: Point M lies on \overrightarrow{JP} .
21. right triangle

Apr 5-1:24 PM

Apr 17-11:24 AM