

Pages 79-81 (Section 2.4)

- 1 a $m\angle 3 = 49$ b $m\angle 6 = 131$ c $m\angle 5 = 49$ d $m\angle 2 = 41$
 e $m\angle 1 = 139$ f $m\angle 8 = 41$ g $m\angle 7 = 139$

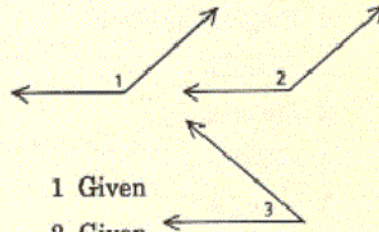
- 2 Given: $\angle 1$ supp $\angle 3$
 $\angle 2$ supp $\angle 3$

Prove: $\angle 1 \cong \angle 2$

1 $\angle 1$ supp $\angle 3$

2 $\angle 2$ supp $\angle 3$

3 $\angle 1 \cong \angle 2$



1 Given

2 Given

3 Supp of same \angle are \cong .

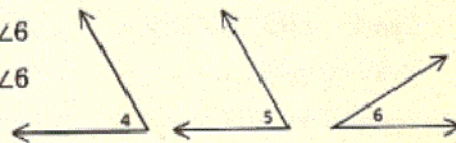
- 3 Given: $\angle 4$ comp $\angle 6$
 $\angle 5$ comp $\angle 6$

Prove: $\angle 4 \cong \angle 5$

1 $\angle 4$ comp $\angle 6$

2 $\angle 5$ comp $\angle 6$

3 $\angle 4 \cong \angle 5$



1 Given

2 Given

3 Comp of same \angle are \cong .

- 4 $x = m$ angle, $180 - x = m$ supplement

$$4x = 180 - x \quad 180 - 36 = 144$$

$$5x = 180 \quad 4(36) = 144$$

$$x = 36$$

$$m \text{ larger } \angle = 144$$

- 5 $x = m$ angle, $x + 20 = m$ larger angle

$$x + x + 20 = 90$$

$$2x + 20 = 90$$

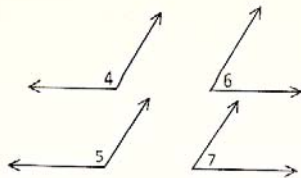
$$2x = 70$$

$$x = 35$$

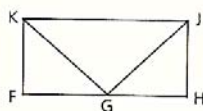
$$x = 35$$

$$x + 20 = 55$$

- 6 Given: $\angle 4$ supp $\angle 6$
 $\angle 5$ supp $\angle 7$
 $\angle 4 \cong \angle 5$
 Concl: $\angle 6 \cong \angle 7$

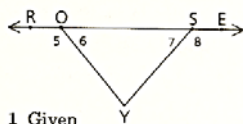


- 7 Given: $\angle FKJ$ rt \angle
 $\angle HJK$ rt \angle
 $\angle GKJ = \angle GJK$
 Concl: $\angle FKG \cong \angle HJG$
 1 $\angle FKJ$ rt \angle
 2 $\angle HJK$ rt \angle
 3 $\angle GKJ = \angle GJK$
 4 $\angle FKJ = \angle HJK$
 5 $\angle FKG = \angle HJG$



- 1 Given
 2 Given
 3 Given
 4 If \angle s are rt \angle s, they are \cong .
 5 Comp of $\cong \angle$ s are \cong .

- 8 Given: Diagram as shown
 $\angle 6 \cong \angle 7$
 Prove: $\angle 5 \cong \angle 8$
 1 Diagram as shown
 2 $\angle 6 \cong \angle 7$
 3 $\angle ROS$ st \angle
 4 $\angle ESO$ st \angle
 5 $\angle 5 \cong \angle 8$



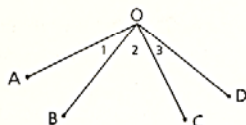
- 1 Given
 2 Given
 3 Assumed from diagram
 4 Same as 3
 5 Supp of $\cong \angle$ s are \cong .

- 9 Given: \overline{SV} bis $\angle RST$.
 Concl: $\angle RSV \cong \angle TSV$
 1 \overline{SV} bis $\angle RST$.
 2 $\angle RSV \cong \angle TSV$



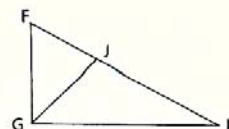
- 1 Given
 2 If a ray bis an \angle , it divides it into 2 $\cong \angle$ s.

- 10 Given: $\overline{OA} \perp \overline{OC}$
 $\overline{OB} \perp \overline{OD}$
 Prove: $\angle 1 \cong \angle 3$
 1 $\overline{OA} \perp \overline{OC}$, $\overline{OB} \perp \overline{OD}$
 2 $\angle AOC$ rt \angle
 3 $\angle BOD$ rt \angle
 4 $\angle 1$ comp $\angle 2$
 5 $\angle 3$ comp $\angle 2$
 6 $\angle 1 \cong \angle 3$



- 1 Given
 2 If 2 segs are \perp , they form rt \angle s.
 3 Same as 2
 4 If the sum of 2 \angle s is a rt \angle , they are comp.
 5 Same as 4
 6 Comp of same \angle are \cong .

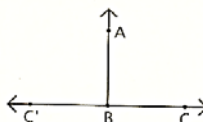
- 11 Given: $\angle F$ comp $\angle FGJ$,
 $\angle H$ comp $\angle HGJ$,
 \overline{GJ} bis $\angle FGH$.
 Concl: $\angle F \cong \angle H$
 1 $\angle F$ comp $\angle FGJ$
 2 $\angle H$ comp $\angle HGJ$
 3 \overline{GJ} bis $\angle FGH$.
 4 $\angle FGJ = \angle JGH$
 5 $\angle F \cong \angle H$



- 1 Given
 2 Given
 3 Given
 4 If a ray bis an \angle , it divides it into 2 $\cong \angle$ s.
 5 Comp of $\cong \angle$ s are \cong .

- 12 $x = m$ angle, $180 - x = m$ supp, $90 - x = m$ comp
 $180 - x = 3(90 - x) + 10$
 $180 - x = 280 - 3x$
 $180 + 2x = 280$
 $2x = 100$ $90 - 50 = 40$
 $x = 50$ m comp = 40

Measure of the complement is 40.

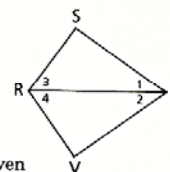


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- 14 a $(-10, 0)$ b They are complementary. c $\frac{7 \times 10}{2} = 35$

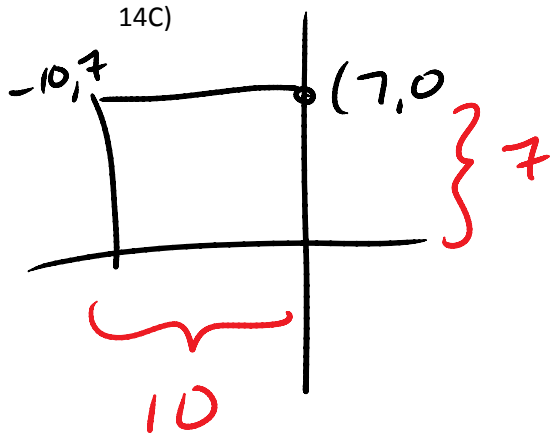
- 15 $(x^2 + 12) + (43 - 2x) = 90$
 $x^2 - 2x - 35 = 0$ $7^2 + 12 = 61$
 $(x - 7)(x + 5) = 0$ $5^2 + 12 = 37$
 $x = 7$ or -5
 $\therefore m \angle PQS = 37$ or 61

- 16 Given: $\angle 1$ comp $\angle 4$
 $\angle 2$ comp $\angle 3$
 \overline{RT} bis $\angle SRV$.
 Prove: \overline{TR} bis $\angle STV$.



- 1 $\angle 1$ comp $\angle 4$
 2 $\angle 2$ comp $\angle 3$
 3 \overline{RT} bis $\angle SRV$.
 4 $\angle 3 \cong \angle 4$
 5 $\angle 1 \cong \angle 2$
 6 \overline{TR} bis $\angle STV$.
 1 Given
 2 Given
 3 Given
 4 If a ray bis an \angle , it divides it into 2 $\cong \angle$ s.
 5 Comp of $\cong \angle$ s are \cong .
 6 If a ray divides an \angle into 2 $\cong \angle$ s, it bis the \angle .

- 17 $7(90 - x) - 3(180 - x) = 30^\circ$
 $630 - 7x - 540 + 3x = 30$
 $90 - 4x = 30$
 $-4x = -60$
 $x = 15$ $180 - 15 = 165^\circ$



$$A_{\text{RECT}} = 7(10) = 70$$

$$A_{\Delta} = 70/2 = 35$$

18 Given: $\angle WXZ \cong \angle VXY$

Concl: $\angle 1 \cong \angle 3$

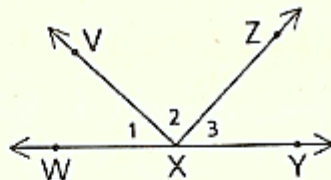
1 $\angle WXZ \cong \angle VXY$

2 $\angle WXY$ st \angle

3 $\angle 1$ supp $\angle VXY$

4 $\angle 3$ supp $\angle WXZ$

5 $\angle 1 \cong \angle 3$



1 Given

2 Assumed from diagram

3 If the sum of 2 \angle s forms a st \angle , the \angle s are supp.

4 Same as 3

5 Supp of $\cong \angle$ s are \cong .

Diag \Rightarrow st \angle

st $\angle \Rightarrow$ suppls

st $\angle \Rightarrow$ suppls
 \angle s supp $\cong \angle$ s $\Rightarrow \cong \angle$ s

19 Because supps of the same \angle are \cong ,

$\angle PQR \cong \angle TWX$. Let $x = m\angle QRS$ and

$$5x - 48 = 2x + 30 \quad m\angle PQR = 5(26) - 48$$

$$3x - 48 = 30 \quad = 82$$

$$3x = 78 \quad m\angle QRS = 180 - 82 = 98$$

$$x = 26$$

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