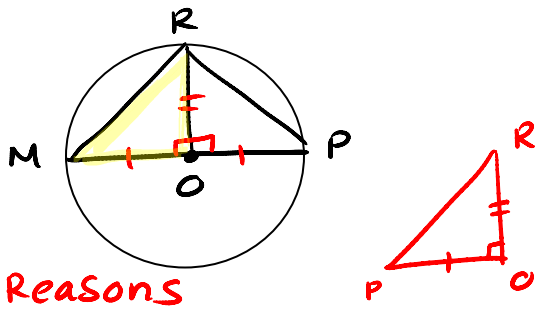
Section 3.3

pgs. 127 - 128 #3, 8, 9, 12, 13, 16, 18, 20, 21

#3 Given: $\odot O$, $\overline{RO} \perp \overline{MP}$

Prove: $\overline{MR} \cong \overline{PR}$



Statements	Reasons
1.) $\odot O$	1.) Given
2.) $\overline{MO} \cong \overline{PO}$ (S)	2.) Radii of a $\odot$ are $\cong$
3.) $\overline{RO} \perp \overline{MP}$	3.) Given
4.) $\angle ROM$ is a right $\angle$	4.) If 2 segs $\perp$ → form a rt. $\angle$
5.) $\angle ROP$ is a right $\angle$	5.) Same as 4.
6.) $\angle ROM \cong \angle ROP$ (A)	6.) If 2 $\angle$'s are $\perp$'s → $\angle$'s $\cong$
7.) $\overline{RO} \cong \overline{RO}$ (S)	7.) Reflexive Property
8) $\triangle ROM \cong \triangle ROP$	8) SAS (2, 6, 7)
9) $\overline{MR} \cong \overline{PR}$	9) CPCTC

#8 $\triangle ABC \cong \triangle DEF$

$m\angle A = 90°$

$m\angle B = 50°$

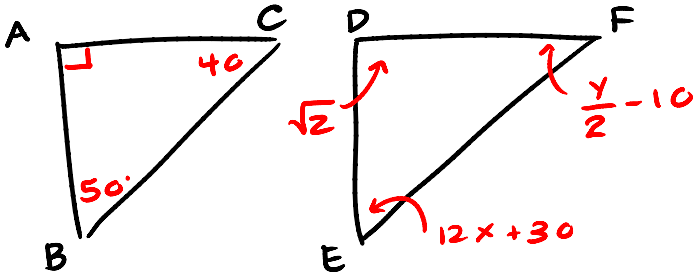
$m\angle C = 40°$

$m\angle E = 12x + 30$

$m\angle F = \frac{y}{2} - 10$

$m\angle D = \sqrt{z}$

Solve for x, y, and z.



$12x + 30 = 50$

$\frac{12x}{12} = \frac{20}{12}$

$x = \frac{5}{3}$

$\frac{y}{2} - 10 = 40$

$2 \cdot \frac{y}{2} = 50 \cdot 2$

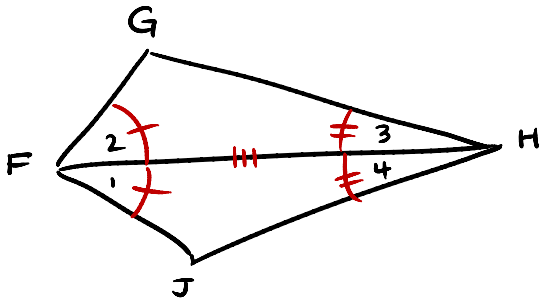
$y = 100$

$(\sqrt{z})^2 = (90)^2$

$z = 8100$

#9 Given: $\overleftrightarrow{FH}$ bisects $\angle GFJ$ and $\angle GHJ$

Conclusion: $\overline{FG} \cong \overline{FJ}$



Statements	Reasons
1.) $\overleftrightarrow{FH}$ bisects $\angle GFJ$	1.) Given
2.) $\angle 1 \cong \angle 2$	2.) If a line bisects a seg. → ÷ seg into 2 ≅ segs.
3.) $\overleftrightarrow{FH}$ bisects $\angle GHJ$	3.) Given
4.) $\angle 3 \cong \angle 4$	4.) Same as 2
5.) $\overline{FH} \cong \overline{FH}$	5.) Reflexive property
6.) $\triangle GFH \cong \triangle JFH$	6.) ASA (2, 5, 4)
7.) $\overline{FG} \cong \overline{FJ}$	7.) CPCTC

#12 Given: H is the midpt of $\overline{GJ}$

M is the midpt of $\overline{OK}$

$\overline{GO} = \overline{JK}$

$\overline{GJ} \cong \overline{OK}$

$\angle G \cong \angle K$

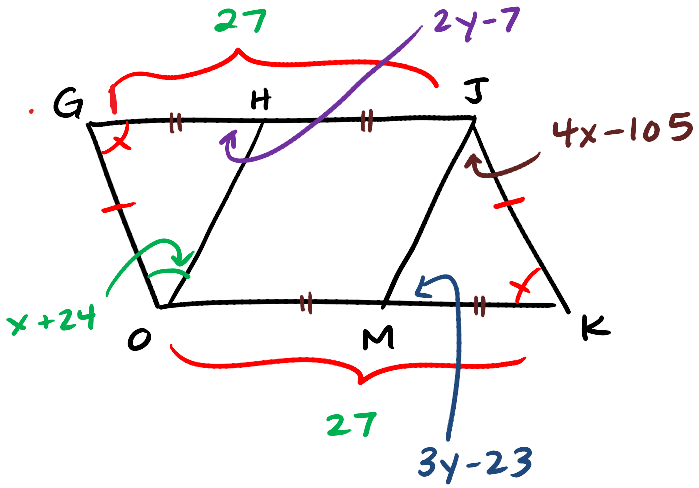
$OK = 27$

$m\angle GOH = x + 24$

$m\angle GHO = 2y - 7$

$m\angle JMK = 3y - 23$

$m\angle MJK = 4x - 105$



$\triangle GHO \cong \triangle KMJ$

Find: $m\angle GOH = 67°$

$m\angle GHO = 25°$

and $GH = \frac{27}{2} = 13.5$

$3y - 23 = 2y - 7$

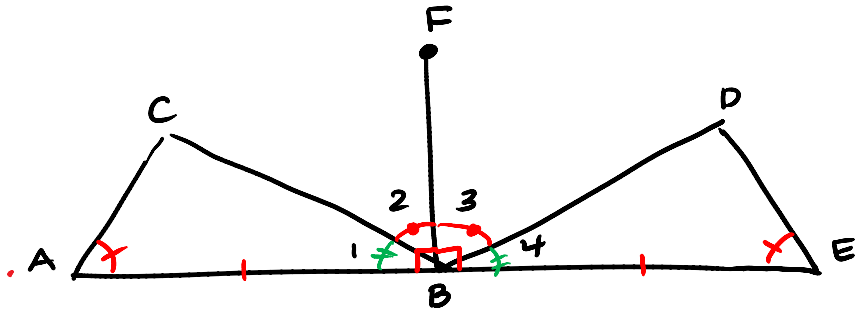
$y = 16$

$4x - 105 = x + 24$

$3x = 129$

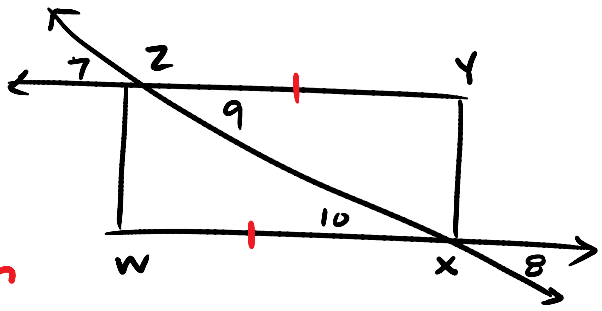
$x = 43$

#13 Given: $\angle A \cong \angle E$
$\overline{AB} \cong \overline{BE}$
$\overline{FB} \perp \overline{AE}$
$\angle 2 \cong \angle 3$
PROVE: $\overline{CB} \cong \overline{DB}$



Statements	Reasons
1.) $\angle A \cong \angle E$ (A)	1.) Given
2.) $\overline{AB} \cong \overline{BE}$ (S)	2.) Given
3.) $\overline{FB} \perp \overline{AE}$	3.) Given
4.) $\measuredangle 2 \cong \measuredangle 3$	4.) Given
5.) $\measuredangle ABE$ is a straight $\measuredangle$	5.) Assumed
6.) $\measuredangle 1$ is supp to $\measuredangle 2$	6) If 2 $\measuredangle$'s form a straight $\measuredangle$ → $\measuredangle$'s supp.
7) $\measuredangle 3$ is supp. to $\measuredangle 4$	7.) " "
8.) $\measuredangle 1 \cong \measuredangle 4$ (A)	8.) If 2 $\measuredangle$'s are supp to $\cong$ $\measuredangle$'s → $\measuredangle$'s $\cong$
9.) $\triangle CAB \cong \triangle DEB$	9.) ASA (1, 2, 8)
10.) $\overline{CB} \cong \overline{DB}$	10.) CPCTC

#16 Given: $\measuredangle 7 \cong \measuredangle 8$, $\overline{ZY} \cong \overline{WX}$ Prove: $\measuredangle W \cong \measuredangle Y$



1. $\measuredangle 7 \cong \measuredangle 8$	1. Given
2. $\overline{ZY} \cong \overline{WX}$ (S)	2. Given
3. $\overline{ZX} \cong \overline{ZX}$ (S)	3. Reflexive property
★ 4. $\measuredangle 7 \cong \measuredangle 9$	4. V.A are $\cong$ ★ $\angle 7$ and $\angle 9$ are V.A
5 $\measuredangle 10 \cong \measuredangle 8$	5. " "
6. $\measuredangle 9 \cong \measuredangle 10$ (A)	6. If 2 $\measuredangle$'s are $\cong$ to the same $\measuredangle$ → $\measuredangle$'s $\cong$ (Transitive
7. $\triangle WXZ \cong \triangle YZX$	7. SAS (2, 6, 3)
8. $\overline{ZY} \cong \overline{WX}$	8. CPCTC

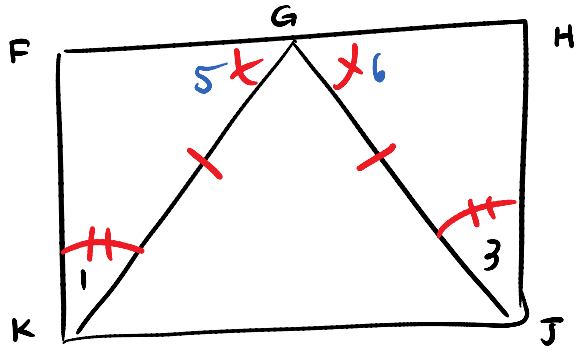
#18 Given: $\overline{KG} \cong \overline{GJ}$

$\angle 2 \cong \angle 4$

$\angle 1$ is comp. to $\angle 2$

$\angle 3$ is comp to $\angle 4$

$\angle FGJ \cong \angle HGK$



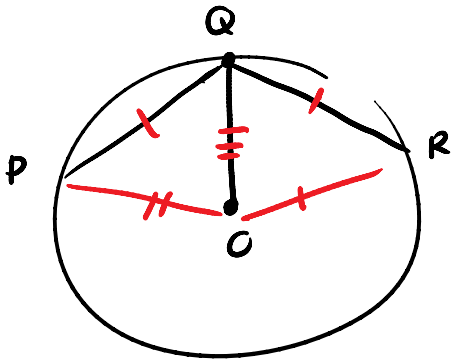
Conc: $\overline{FG} \cong \overline{HG}$

1. $\overline{KG} \cong \overline{GJ}$ (S)	1. Given
2. $\angle 2 \cong \angle 4$	2. Given
3. $\angle 1$ is comp to $\angle 2$	3. Given
4. $\angle 3$ is comp to $\angle 4$	4. Given
5. $\angle 1 \cong \angle 3$	5. If 2 $\angle$'s are comp. to $\cong$ $\angle$'s → $\angle$'s $\cong$
6. $\angle FGJ \cong \angle HGK$	6. Given Subtraction (If a $\cong$'s – same $\angle$ → differences $\cong$)
6.5 $\angle 5 \cong \angle 6$	
7 $\triangle FKG \cong \triangle HJG$	7 ASA (5, 1, 65)
8. $\overline{FG} \cong \overline{HG}$	8. CPCTC

#20 Given: $\odot O$

$\overline{PQ} \cong \overline{QR}$

Prove: $\overrightarrow{QO}$ bisects $\angle PQR$

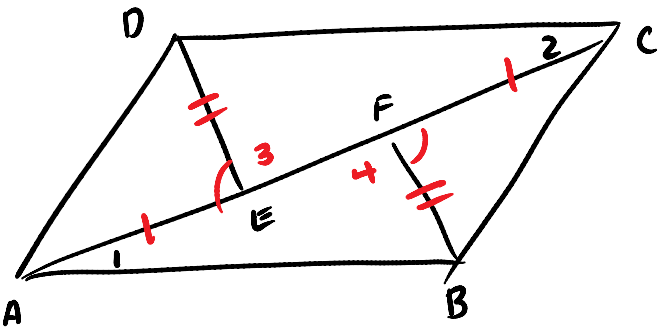


1. $\odot O$	1. Given
2. $\overline{PQ} \cong \overline{QR}$ (S)	2. Given
3 Draw $\overline{PO}$ and $\overline{RO}$	3. 2 pts determine a line (from sec 3 4)
4. $\overline{PO} \cong \overline{RO}$ (S)	4. All radii are $\cong$
5. $\overline{QO} \cong \overline{QO}$ (S)	5. Reflexive property
6. $\triangle QOP \cong \triangle QOR$	6. SSS (2, 4, 5)
7. $\angle PQO \cong \angle RQO$	7. CPCTC
8 $\overline{QO}$ bisects $\angle PQR$	8. If a ray divides an angle into 2 $\cong$ $\angle$'s → bisects the $\angle$

#21 Given: $\overline{AE} \cong \overline{FC}$

$\overline{FB} \cong \overline{DE}$

$\angle CFB \cong \angle AED$



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

1. $\overline{AE} \cong \overline{FC}$	1. Given
2. $\overline{FB} \cong \overline{DE}$ (S)	2 Given
3. $\angle CFB \cong \angle AED$	3. Given
4. $\overline{AF} \cong \overline{EC}$ (S)	4. If the same seg is added to $\cong$ segs then the sums $\cong$
5 $\angle AEF$ is a straight $\angle$	5. Assumed
6. $\angle AED$ is supp to $\angle 3$	6. If 2 $\angle$s form a straight $\angle$ → $\angle$'s supp
7. $\angle CFB$ is supp to $\angle 4$	7. " "
8. $\angle 3 \cong \angle 4$ (A)	8. If 2 $\angle$'s are supp to $\cong$ $\angle$'s → $\angle$'s $\cong$
9. $\triangle DEC \cong \triangle BFA$	9. SAS (2, 8, 4)
10. $\angle 1 \cong \angle 2$	10. CPCTC