

3.5 Q&A

Note Title

10/20/2015

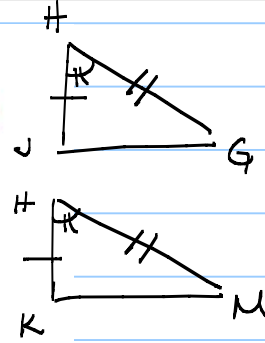
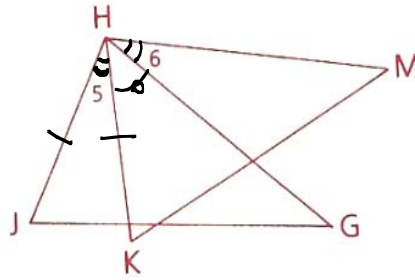
SSS

SAS

~~ASA~~

- 5 Given: $\overline{JH} \cong \overline{KH}$,
 $\overline{HG} \cong \overline{HM}$,
 $\angle 5 \cong \angle 6$

Conclusion: $\triangle JHG \cong \triangle KHM$



S

S 1. $\overline{JH} \cong \overline{KH}$

2. $\angle 5 \cong \angle 6$

3. $\angle KHG \cong \angle KHG$

A 4. $\angle JHG \cong \angle KHM$

S 5. $\overline{HG} \cong \overline{HM}$

6. $\triangle JHG \cong \triangle KHM$

R

1. Given

2. Given

3. Reflexive

4. Add (2,3)

5. Given

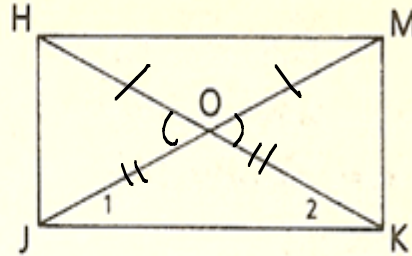
6. SAS (1,4,5)

12 Given: $\overline{HO} \cong \overline{MO}$

$\overline{JO} \cong \overline{KO}$

\overline{HJ} is an alt
of $\triangle HJK$.

\overline{MK} is an alt
of $\triangle MKJ$.



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

1 $\overline{HO} \cong \overline{MO}, \overline{JO} \cong \overline{KO}$

1 GIVEN

2 $\angle HOJ \cong \angle MOK$

2 Vert \angle s $\Rightarrow \cong \angle$ s

3 $\triangle HOJ \cong \triangle MOK$

3 SAS (1 2 1)

4 \overline{HJ} is an alt of $\triangle HJK$.

4 Given

5 $\angle HJK$ is a rt \angle .

5 alt \Rightarrow rt \angle

6 \overline{MK} is an alt of $\triangle MKJ$.

6 Given

7 $\angle MKJ$ is a rt \angle .

7 alt \Rightarrow rt \angle

8 $\angle HJK \cong \angle MKJ$

8 rt \angle s $\Rightarrow \cong \angle$ s

9 $\angle HJO \cong \angle MKO$

9 CPCTC

10 $\angle 1 \cong \angle 2$

10 subtract

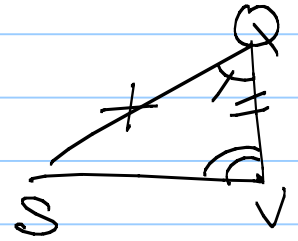
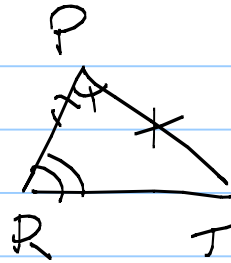
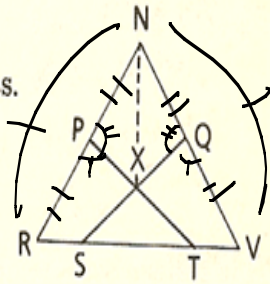
13 Given: $\overline{NR} \cong \overline{NV}$

P and Q are mdpts.

$\angle R \cong \angle V$

$\overline{PX} \cong \overline{QX}$

Prove: $\triangle XST$ is isos.



1 $\overline{NR} \cong \overline{NV}$

2 P and Q are mdpts.

3 $\overline{NP} \cong \overline{NQ}$, $\overline{PR} \cong \overline{QV}$

4 $\overline{PX} \cong \overline{QX}$

5 Draw \overline{NX}

6 $\overline{NX} \cong \overline{NX}$

7 $\triangle NPX \cong \triangle NQX$

8 $\angle NPX \cong \angle NQX$

9 $\angle RPT$ supp of $\angle NPX$

10 $\angle VQS$ supp of $\angle NQX$

11 $\angle RPT \cong \angle VQS$

12 $\angle R \cong \angle V$

13 $\triangle RPT \cong \triangle VQS$

14 $\overline{QS} \cong \overline{PT}$

15 $\overline{XS} \cong \overline{XT}$

16 $\triangle XST$ is isos.

1 Given

2 Given

3 \therefore OR mdpt \cong segs $\Rightarrow \cong$ segs

4 Given

5 2 pt \Rightarrow line OR Aux

6 Ref

7 SSS

8 CPCTC

9 STL \Rightarrow suppl \angle s

10 STL \Rightarrow suppl \angle s

11 \angle s supp to $\cong \angle$ s $\Rightarrow \cong \angle$ s

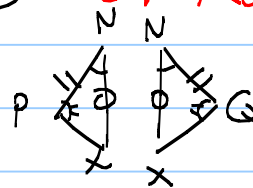
12 Given

13 ASA

14 CPCTC

15 Subtract

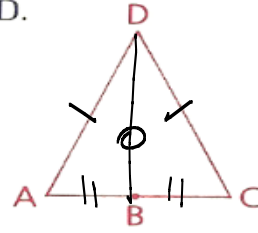
16 \cong segs \Rightarrow isos \triangle



3.6

7 Given: \overline{AD} and \overline{CD} are legs of isosceles $\triangle ACD$.
B is the midpt. of \overline{AC} .

Prove: $\angle A \cong \angle C$



- | <u>S</u> | <u>R</u> |
|--|---|
| 1. \overline{AD} & \overline{CD} legs isos \triangle | 1. Given |
| 2. $\overline{AD} \cong \overline{CD}$ | 2. isos $\triangle \Rightarrow 2 \cong$ sides |
| 3. B midpt $\triangle AC$ | 3. Given |
| 4. $\overline{AB} \cong \overline{BC}$ | 4. midpt $\Rightarrow \cong$ segs |
| 5. Draw \overline{DB} | 5. Aux |
| 6. $\overline{DB} \cong \overline{DB}$ | 6. Ref |
| 7. $\triangle ADB \cong \triangle CDB$ | 7. SSS (2 4 6) |
| 8. $\angle A \cong \angle C$ | 8. CPCTC (7) |

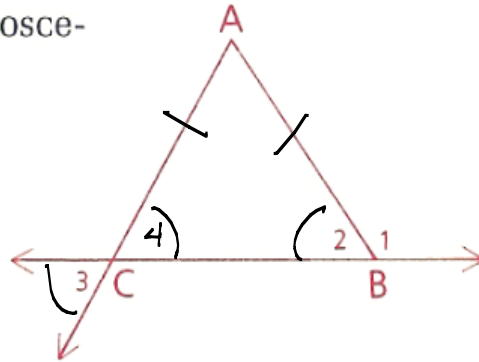
14 Given: \overline{AB} and \overline{AC} are the legs of isosceles $\triangle ABC$.

$$m\angle 1 = 5x,$$

$$m\angle 3 = 2x + 12$$

Find: $m\angle 2$

nota proof



$$\overline{AB} \cong \overline{AC}$$

isos \triangle def

$$AB = AC$$

\cong segs \Rightarrow \cong meas

$$\angle 4 = \angle 2$$

base \angle s of isos $\triangle \cong$

$$\angle 3 = \angle 4$$

vert \angle s

$$\angle 1 \text{ supp } \angle 2$$

st $\angle \Rightarrow$ supp \angle s

* $\angle 1$ supp $\angle 3$ substitute

$$5x + 2x + 12 = 180$$

$$7x = 168$$

$$x = 24$$

$$m\angle 1 = 5(24 + 4) = 120$$

$$\text{supp } \angle 1 = m\angle 2 = 60^\circ$$

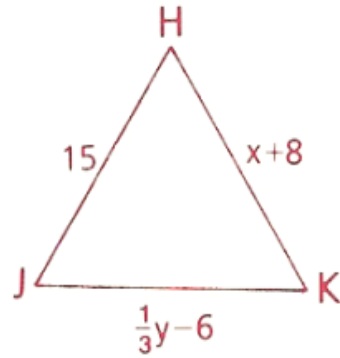
3.6:5

6 If $\triangle HJK$ is equilateral, what are the values of x and y ?

all sides \cong

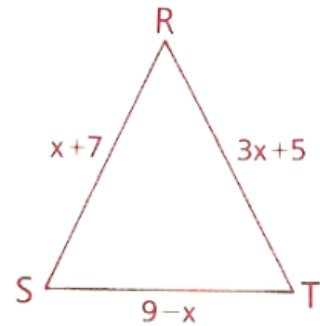
$$\begin{aligned} HJ &= HK \\ 15 &= x+8 \\ 7 &= x \end{aligned}$$

$$\begin{aligned} &\& HJ = JK \\ 15 &= \frac{1}{3}y - 6 \\ 21 &= \frac{1}{3}y \\ 63 &= y \end{aligned}$$



3.6:5

10 In $\triangle RST$, $RS = x + 7$, $RT = 3x + 5$, and $ST = 9 - x$. If $\triangle RST$ is isosceles, is it also equilateral?



If isos

$$RS = RT$$

OR

$$RS = ST$$

OR

$$RT = ST$$

$$x+7 = 3x+5$$

$$x+7 = 9-x$$

$$3x+5 = 9-x$$

$$2 = 2x$$

$$2x = 2$$

$$4x = 4$$

$$1 = x$$

$$x = 1$$

$$x = 1$$

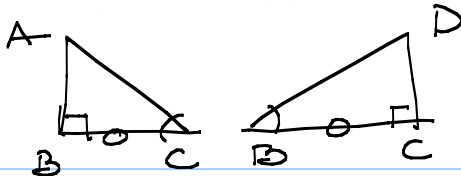
| If $x =$ | RS | RT | ST |
|----------|----|----|----|
| 1 | 8 | 8 | 8 |

∴ Yes

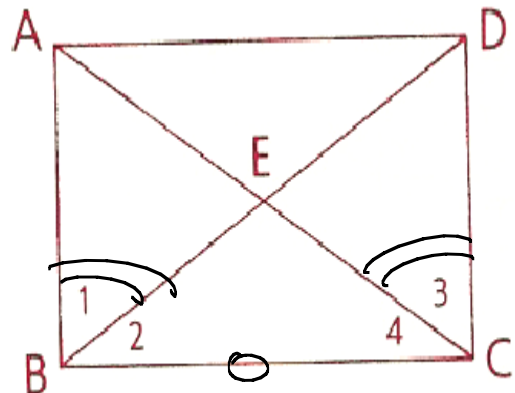
3.5:6

- 6 Given: $\angle 1$ is comp. to $\angle 2$.
 $\angle 3$ is comp. to $\angle 4$.
 $\angle 1 \cong \angle 3$

Conclusion: $\overline{AB} \cong \overline{CD}$



1. $\angle 1$ comp $\angle 2$
 $\angle 3$ comp $\angle 4$
2. $\angle ABC$ & $\angle DCB$ r.t.l.s
3. $\angle ABC \cong \angle DCB$
4. $\overline{BC} \cong \overline{CB}$
5. $\angle 1 \cong \angle 3$
6. $\angle 2 \cong \angle 4$
7. $\triangle ABC \cong \triangle DCB$
8. $\overline{AB} \cong \overline{DC}$



1. Given
2. comp $\angle \Rightarrow$ r.t.l.s
3. r.t.l.s $\Rightarrow \cong \angle$
4. Ref
5. Given
6. comp of $\cong \angle s \Rightarrow \cong \angle s$ (1,5)
7. ASA (3,4,6)
8. CPCTC

