

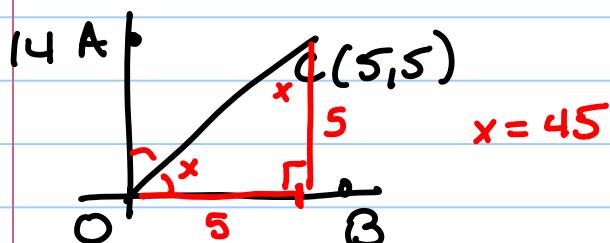
# Q+A

Note Title

9/16/2015

2.2: 14, 21-25

2.3: 4 & 7



25. supp is 60 less than 2 supp of comp

$$180 - x = 2[180 - (90 - x)] - 60$$

$$180 - x = 2(90 + x) - 60$$

$$180 - x = 180 + 2x - 60$$

-180

-180

$$-x = 2x - 60$$

$$60 = 3x$$

$$20 = x$$

x = angle

$$\boxed{\text{comp} = 70^\circ}$$

$$23. \quad 180 - x = 5(90 - x) - 30$$

$$2(90) - x = 5(90) - 5x - 30$$

$$-2(90) + 5x \quad -2(90) + 5x$$

$$4x = 3(90) - 30$$

$$4x = 270 - 30$$

$$4x = 240$$

$$x = 60 \leftarrow \text{the angle}$$

$$\text{comp} : 30^\circ$$

$$\frac{2}{5}C : 30 \cdot \frac{2}{5} = \boxed{12^\circ}$$

$x = \text{angle}$ , comp:  $90 - x$ , supp:  $180 - x$



22.  $5(90 - x) - 2(180 - x) = 40$

$$5(90) - 5x - 4(90) + 2x = 40$$

$$90 - 3x = 40$$

$$50 = 3x$$

$$50/3 = x$$

$$16 \frac{2}{3} = x \rightarrow \text{the angle}$$

Find m supp

$$\begin{array}{r} 180 \\ - 16 \frac{2}{3} \\ \hline 163 \frac{1}{3} \end{array} \rightarrow 163 \frac{1}{3}^\circ$$

21. supp is 4 comp

$$180 - x = 4(90 - x)$$

$$2(90) - x = 4(90) - 4x$$

$$-2(90) + 4x \quad -2(90) + 4x$$

$$3x = 2(90)$$

$$3x = 180$$

$$x = 60$$

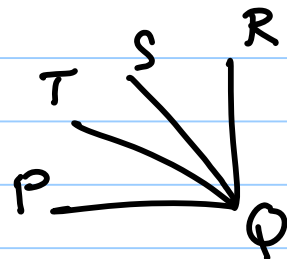
$$\rightarrow \text{supp} = 120$$

$$\text{Comp} = 30^\circ$$

2.3:

4. G:  $\overrightarrow{QS}$  &  $\overrightarrow{QT}$  trisect  $\angle PQR$

P:  $\angle PQT \cong \angle TQS \cong \angle RQS$



Statements

Reasons

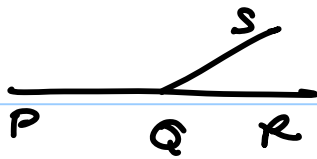
1.  $\overrightarrow{QS}$  &  $\overrightarrow{QT}$  trisect  $\angle PQR$

1. Given

2.  $\angle PQT \cong \angle TQS \cong \angle RQS$

2. trisect  $\Rightarrow 3 \cong \angle S$

7. G: Diag  
P:  $\angle PQR \text{ st } \angle$



Statement

Reason

1. Diag

1. Given

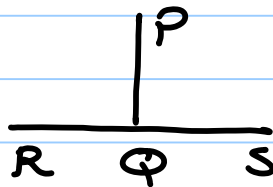
2.  $\angle PQR \text{ st } \angle$

2. Diag  $\Rightarrow \text{st } \angle$

2.3 cont'd

2.3: 8-12

12. G:  $m\angle PQS = 90^\circ$   
C



Statements

Reasons

1.  $m\angle PQS = 90^\circ$

1. Given

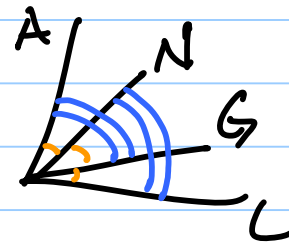
2.  $\angle PQS \text{ rt } \angle$

2.  $90^\circ \Rightarrow \text{rt } \angle$

3.  $\overline{PQ} \perp \overline{RS}$

3.  $\text{rt } \angle \Rightarrow \perp$

11. G:  $\angle AEN \cong \angle GEN \cong \angle GEL$



Statements

Reason

1.  $\angle AEN \cong \angle GEN \cong \angle GEL$

1. Given

2.  $\overrightarrow{EN}$  &  $\overrightarrow{EG}$  trisect  $\angle AEL$

2.  $3 \cong \angle s \Rightarrow \text{trisection}$

3.  $\angle AEG \cong \angle NEL$

3. Add

2.2 : 16, 22, 23, 25 & 2.3: 3, 4, 6, 7

L:  $x$

C:  $90-x$

S:  $180-x$



25. Supp is 60 less than 2 supp of comp  
 $180-x = 2[180-(90-x)] - 60$

$$180-x = 2(90+x) - 60$$

$$180-x = 180 + 2x - 60$$

$$\begin{array}{r} -180 \quad -180 \\ 180-x = 180+2x-60 \end{array}$$

$$-x = 2x - 60$$

$$\begin{array}{r} +60 \quad +x \quad +x \quad +60 \\ -x = 2x - 60 \end{array}$$

$$60 = 3x$$

$$20 = x$$

$$\text{angle} = 20^\circ$$

$$\text{comp} = \boxed{70^\circ}$$

23. Supp is 30 less than five times comp  
 $180-x = 5(90-x) - 30$

$$2(90)-x = 5(90)-5x-30$$

$$\begin{array}{r} -2(90) +5x \quad -2(90) +5x \\ 2(90)-x = 5(90)-5x-30 \end{array}$$

$$4x = 3(90) - 30$$

$$4x = 270 - 30$$

$$4x = 240$$

$$x = 60^\circ \rightarrow \text{angle}$$

comp: 30

$$\frac{2}{5} \text{ comp: } \frac{2}{5} \cdot 30 = \boxed{12^\circ}$$

22. Five times comp less twice supp is 40

$$5(90 - x) - 2(180 - x) = 40$$

$$\underline{5(90)} - \underline{5x} - \underline{4(90)} + \underline{2x} = 40$$

$$90 - 3x = 40$$

$$-3x = -50$$

$$x = 50/3 = 16 \frac{2}{3}^\circ$$

Angle

$$\begin{array}{l} 180 \\ 16 \frac{2}{3} \end{array} \left\{ \begin{array}{l} 179 \frac{1}{3} \\ -16 \frac{2}{3} \\ \hline 163 \frac{1}{3}^\circ \end{array} \right.$$

4

$$\angle PQT \cong$$

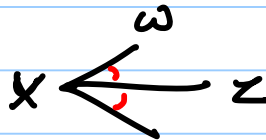
$$\angle RQS \cong$$

$$\angle TQS$$

$$\text{trisect} \Rightarrow 3 \cong \angle S$$

3.  $G: \angle WXYZ \cong \angle YXZ$

C:  $\vec{xz}$  bis  $\angle WXY$



Statements

Reasons

1.  $\angle WXYZ \cong \angle YXZ$

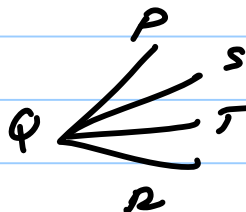
1. Given

2.  $\vec{xz}$  bis  $\angle WXY$

2.  $\cong \angle S \Rightarrow \text{bis}$

4.  $G: \vec{QS} \text{ \& } \vec{QT} \text{ trisect } \angle PQR$

C:  $\angle PQS \cong \angle SQT \cong \angle TQR$



Stat

Reason

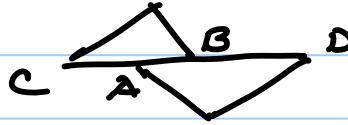
1.  $\vec{QS} \text{ \& } \vec{QT} \text{ trisect } \angle PQR$

1. Given

2.  $\angle PQS \cong \angle SQT \cong \angle TQR$

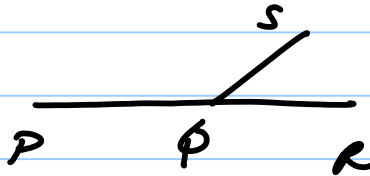
2.  $\text{trisect} \Rightarrow 3 \cong \angle S$

6. G:  $A + R$  trisect  $\overline{CD}$   
C:



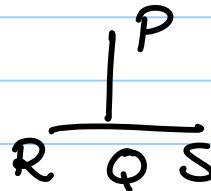
Statements	Reasons
1. $A + R$ trisect $\overline{CD}$	1. Given
2. $\overline{CA} \cong \overline{AB} \cong \overline{BD}$	2. trisect $\Rightarrow 3 \cong$ segs

7. G: Diag  
C:



Statement	Reason
1. Diag	1. Given
2. $\angle PQR$ st $\angle$	2. Diag $\Rightarrow$ st $\angle$
3. $\angle PQS$ supp $\angle SQR$	3. st $\angle \Rightarrow$ supp $\angle$ s

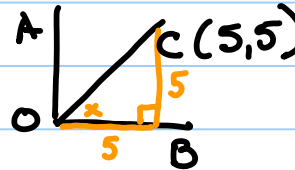
12. G:  $m\angle PQS = 90$   
C:



Statements	Reasons
1. $m\angle PQS = 90$	1. Given
2. $\angle PQS$ rt $\angle$	2. $90^\circ \Rightarrow$ rt $\angle$
3. $\overline{PQ} \perp \overline{RS}$	3. rt $\angle \Rightarrow \perp$

P8

2.2: 14, 21, 23, 25

14.  isosceles right  $\Delta$   
 $x + x + 90 = 180$   
 $2x = 90$   
 $x = 45^\circ$

$\angle: x$

$C: 90 - x$

$S: 180 - x$

21. Supp is four times comp  
 $180 - x = 4 (90 - x)$

$$2(90) - x = 4(90) - 4x$$

$$-2(90) + 4x \quad -2(90) + 4x$$

$$\frac{3x}{3} = \frac{2(90)}{3}$$

$$x = 2(30) = 60$$

angle is  $60^\circ$

$$\text{comp: } 90 - 60 = \boxed{30^\circ}$$

22. Five times comp less twice Supp is 40

$$5 (90 - x) - 2 (180 - x) = 40$$

23. Supp is 30 less than 5 times comp

$$180 - x = 5(90 - x) - 30$$

$$25. 180 - x = 2(180 - (90 - x)) - 60$$

$$180 - x = 2(90 + x) - 60$$

$$2(90) - x = 2(90) + 2x - 60$$

$$\textcolor{red}{-2(90)} \quad \textcolor{red}{-2(90)}$$

$$-x = 2x - 60$$

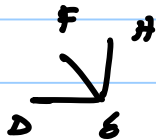
$$\textcolor{orange}{+60} \textcolor{green}{+x} \textcolor{green}{+x} \textcolor{orange}{+60}$$

$$60 = 3x$$

$$20 = x \rightarrow \text{angle}$$

$$\text{comp: } 70^\circ$$

2.  $G: \angle DEF \text{ comp } \angle HEF$   
 $P: \angle HED \text{ rt } \angle$



S

$$1. \angle DEF \text{ comp } \angle HEF$$

$$2. \angle HED \text{ rt } \angle$$

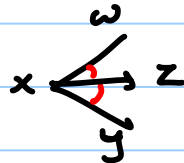
R

$$1. \text{ Given}$$

$$2. \text{ comp } \angle \Rightarrow \text{rt } \angle$$

$$3.6 \angle WXYZ \cong \angle YXZ$$

P.



S

$$1. \angle WXYZ \cong \angle YXZ$$

$$2. \overleftrightarrow{XZ} \text{ bis } \angle WXY$$

R

$$1. \text{ GIVEN}$$

$$2. \cong \angle s \Rightarrow \text{bis}$$

Reasoning  
on

? : If ray bis  $\angle$ , 2  $\cong \angle s$  are made

converse

Statement

Reason

$$2. \angle PQT \cong$$

$$\angle RQS \cong$$

$$\angle TQS$$

$$2. \text{ trans } \Rightarrow \cong \angle s$$

Q.E.D.



5. S B

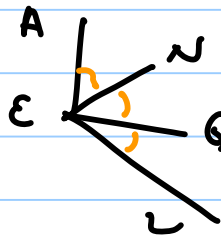
2.  $\overline{AE} \cong \overline{EC}$  2. mdpt  $\Rightarrow 2 \cong$  segs

6. 2.  $\overline{CA} \cong \overline{AR} \cong \overline{RD}$  2. trisect  $\Rightarrow 3 \cong$  segs

7. 2.  $\angle PQR \cong \angle L$  2. Diag  $\Rightarrow \angle L$

8-12

11. G:  $\angle AEN \cong \angle GEN \cong \angle GEL$   
C:



Statements

Reasons

1.  $\angle AEN \cong \angle GEN \cong \angle GEL$  1. GIVEN

C<sub>1</sub> 2.  $\overline{EN}$  &  $\overline{EG}$  tris  $\angle AEL$  2. tris  $\Rightarrow 3 \cong \angle s$  Reason by conv



C<sub>2</sub> 3.  $\overline{EN}$  bis  $\angle AEG$

2.  $3 \cong \angle s \Rightarrow$  trisection

3.  $2 \cong \angle s \Rightarrow$  bis