Key

Name: _____

Period: _____

Date: _____

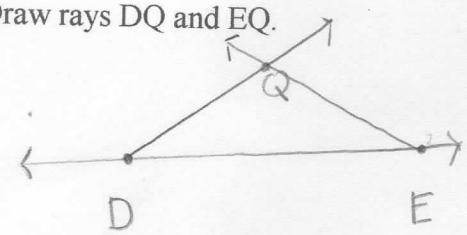
Line, segment, and ray homework

Answer all questions with a complete sentence.

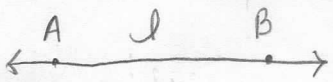
1. **a.** Draw two points, D and E. Then draw line DE.

   b. Draw point *Q not* on the line.

   c. Draw rays DQ and EQ.



2. What are three possible names for the line shown?



$\overleftrightarrow{AB}$ $\overleftrightarrow{BA}$ $\overleftrightarrow{l}$

3. Can the ray shown be called XY ? Why not?

The name starts with point at end.

4. According to the definition of a line found on GFEC text found on page 3, a line is made up of what?

Points.

a. Does this agree or disagree with Euclid? Provide examples from texts to support your claim.

Do # 10 b. on p 15 and # 13 & 14 on p 16 of GFEC below

10b. The length of $\overline{PQ}$ is 5 units.

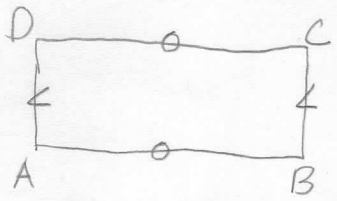
If R is at 7 and Q is at 3, the length of $\overline{QR}$ would be 4 units

4units ≠ 5units

$\overline{QR} \neq \overline{PQ}$ (substitution)

13. Perimeter of ABDC = 66

$\overline{DC} = 2\overline{CB}$



How long is AB?

What can I write from the information that has been given?

	Why?
$\frac{1}{2}\overline{DC} = \overline{CB}$	Algebraic division
$\overline{DC} \cong \overline{AB}$	Given in diagram
$\overline{DC} = \overline{AB}$	Definition of congruent
$\frac{1}{2}\overline{DC} = \frac{1}{2}\overline{AB}$	Algebraic division
$\overline{CB} \cong \overline{AD}$	Given in diagram
$AD = \frac{1}{2}\overline{AB}$	Euclid C.N. 1

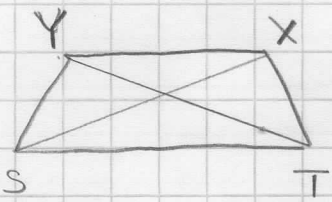
Perimeter = $\overline{DC} + \overline{CB} + \overline{AB} + \overline{AD}$

$66 = \overline{AB} + \frac{1}{2}\overline{AB} + \overline{AB} + \frac{1}{2}\overline{AB}$ substitution

$66 = 3\overline{AB}$

$\boxed{33 = \overline{AB}}$ Algebraic division

14.



$\overline{XS} = \overline{YT}$ solve for r and m

$\overline{YS} = \overline{XT}$

$\overline{XT} = 2r+5$ $\quad 2r+5 = 3.5r+2$

$\overline{XS} = 3m+7$ $\quad 3 = 1.5r$

$\overline{YS} = 3\frac{1}{2}r+2$ $\quad \boxed{2 = r}$

$\overline{YT} = 4.2m+5$ $\quad 4.2m+5 = 3m+7$

$1.2m = 2$

$\boxed{m = 1.6\overline{6}}$

Mrs Dukes

Name Honors Geometry

Period_____

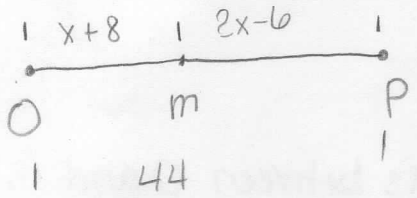
Date_____

key Assigned 8/15/17

Due 8/16/17

Collinear, noncollinear, between, bisector and congruence homework

1. Point M is between endpoints O and P on line segment OP. OM = x + 8; MP = 2x – 6; OP = 44 Solve the length of both OM and MP and determine if point M bisects line segment OP.



$x+8+2x-6=44$

$3x+2=44$

$3x=42$

$x=14$

$\overline{OM}=\overline{MP}$

$\overline{OM}=x+8=14+8=22$

$\overline{MP}=2x-6=2(14)-6$

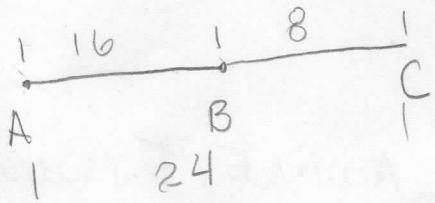
$=28-6$

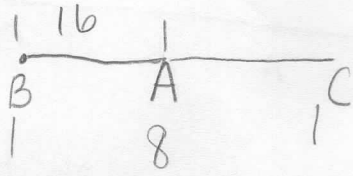
$=22$

$\therefore$ M Bisects $\overline{OP}$

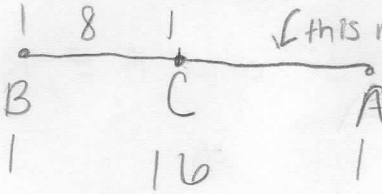
2. If AB = 16, BC = 8, and AC = 24, which point is between?

a. Draw three diagrams. Draw one that proves the point between and draw two showing that the other points cannot be between.



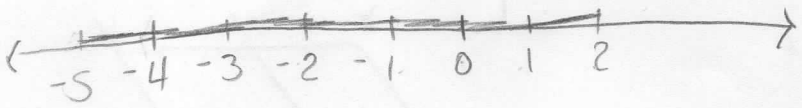


← cannot be

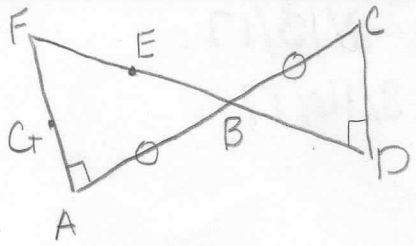


this must be 8 for this diagram to be true

3. Draw a number line and shade all points that are at or between -5 and 2. Write the length of this shaded segment.



length = 7 units

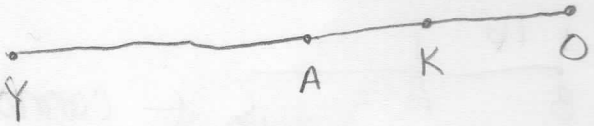
3a 

name all pts that are collinear with E & F

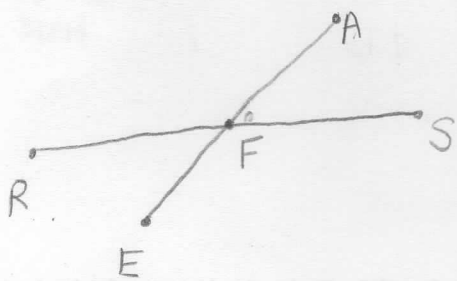
B, D

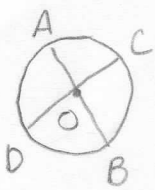
b. Are G, E, and O collinear? No
Are F and C collinear? Yes

10. A, K, O, and Y are collinear points. K is between O and A. The length of $\overline{AO}$ added to the length of $\overline{AY}$ is equal to the length of $\overline{OY}$. A is to the right of O



11: Draw a diagram in which F is between A and E. F is also between R and S and A, E, R, and S are non-collinear.

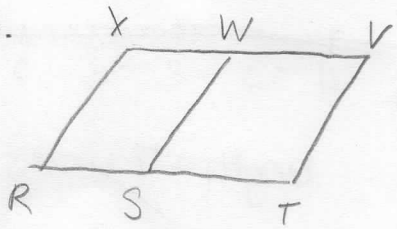


1. a 

O is midpoint of $\overline{DC}$

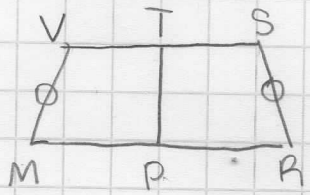
Name all congruent segments

$\overline{DO} \cong \overline{OC}$

b. 

$\overline{SW}$ Bisects $\overline{XV}$

$\overline{XW} \cong \overline{WV}$

19. 

Given: $\overleftrightarrow{TP}$ bisects $\overline{VS}$ and $\overline{MR}$

$\overline{VM} \cong \overline{SR}$

$\overline{MP} = 9$, $\overline{VT} = 6$

perimeter of MRSV = 62

Find VM

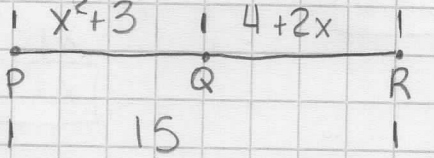
	why
VT = TS and MP = PR	def. of bisector
$\therefore VM = SR$	def. of congruence

perimeter = VT + TS + SR + PR + MP + VM

62 = 6 + 6 + VM + 9 + 9 + VM Substitution

32 = 2VM

16 = VM

21. 

a. Find the value of x

$x^2+3+4+2x=15$

$x^2+2x-8=0$

$(x+4)(x-2)=0$

x = 2

$x \neq -4$

b. Is Q the midpoint of $\overline{PR}$?

$x^2+3 = 4+3 = 7$ $4+4=8$ **No**

5.

B and C trisect $\overline{AD}$

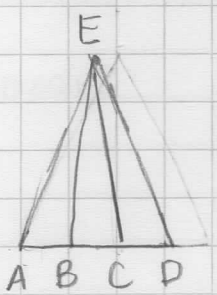
a. Find the coordinates of B and C

B = 2 C = 9

b. Find $\overline{AC}$

$\overline{AC} = 14$

8 a.



B and C are trisection points of $\overline{AD}$ and $\overline{AD} = 12$

a. Find $\overline{AB}$

$AB = 4$

b. Find $\overline{AC}$

$AC = 8$

c. If $\overline{AB} = x+3$, solve for x

$x+3 = 4$

$x = 1$

d. If $AB = x+3$ and $AE = 3x+6$, find AE

$x = 1$ $AE = 3(1)+6$

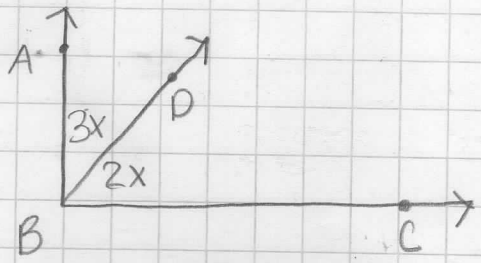
$AE = 9$

e. What segment is C the midpoint of?

C is the midpoint of segment BD.

P21

6.



$\angle ABC$ is a right angle. The ratio of the measures of $\angle ABD$ and $\angle DBC$ is 3 to 2. Find measure of $\angle ABD$

$3x + 2x = 90^\circ$

$5x = 90^\circ$

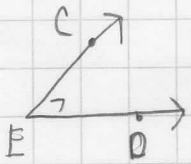
$x = 18^\circ$.

$\angle ABD = 3x = 3(18^\circ) = \boxed{54^\circ}$

Honors Geometry HW #e
Assigned 8-16-17
Due 8-17-17

p7

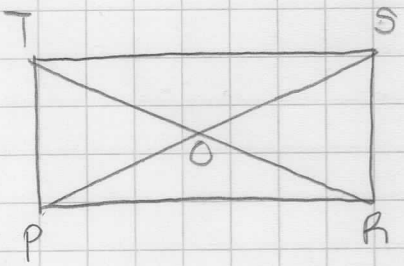
(2)



What are 4 possible names for the angle shown?

∠CED, ∠DEC, ∠E, ∠7

(6)



(a) Name ∠OPR in all other possible ways

∠SPR, ∠RPO, ∠RPS

(b) What is the vertex of ∠TOS?

The vertex of ∠TOS is O

(c) How many angles has vertex R?

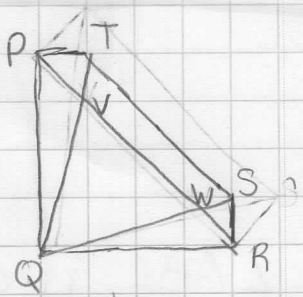
Vertex R has 2 angles

(d) Name ∠TSP in all other possible ways.

∠TSO, ∠PST, ∠OST

p14-15

(4e)



How many angles have vertex Q?

Vertex Q has 6 angles

← (b) There is a right angle at each corner of PRST.

(a) If ∠TPO = 60° how large is ∠RPO?

∠RPO = 30°

(b) If ∠PTO = 70°, How large is ∠STO?

∠STO = 20°

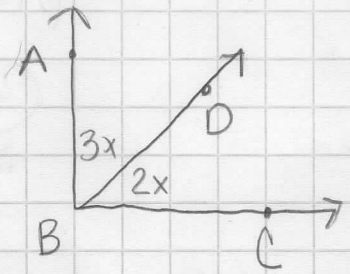
(c) If ∠TOP = 50°, how large is ∠POR?

∠POR = 130°

(d) Classify ∠TOS as acute, right, or obtuse

∠TOS = 130°
so ∠TOS is obtuse

p 21



$\angle ABC$ is a right angle. The ratio of the measures of $\angle ABD$ and $\angle DBC$ is 3 to 2. Find $\angle ABD$

$3x + 2x = 90^\circ$

$5x = 90^\circ$

$x = 18^\circ$

$\angle ABD = 3x$

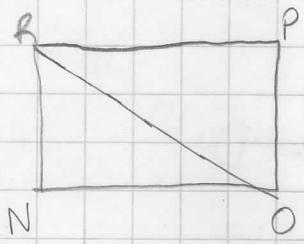
$= 3(18^\circ)$

$\boxed{= 54^\circ}$

P32-34

Honors Geometry Assigned 8/17 due 8/18

(2)



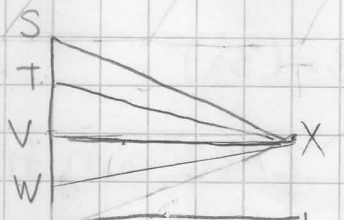
(a.) $\overrightarrow{RO}$ bisects $\angle NRP$

Name the congruent angles.

$\angle NRO$ $\angle ORN$ } these are the same $\angle$, just have the letters arranged different

$\angle ORP$ $\angle PRO$ } same

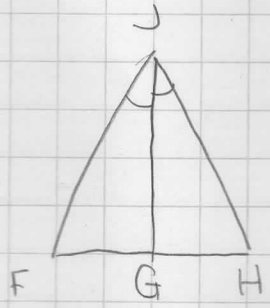
(b.) $\overrightarrow{XT}$ and $\overrightarrow{XV}$ trisect $\angle SXW$



$\angle SXT$ $\angle TXS$
$\angle TXV$ $\angle VTX$
$\angle VXW$ $\angle WXV$

(3)

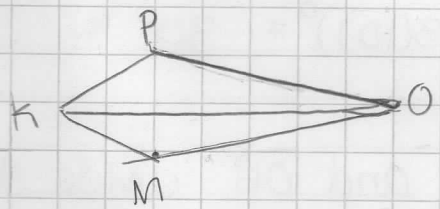
(a)



Name the angle bisector

$\overrightarrow{JG}$

(b)

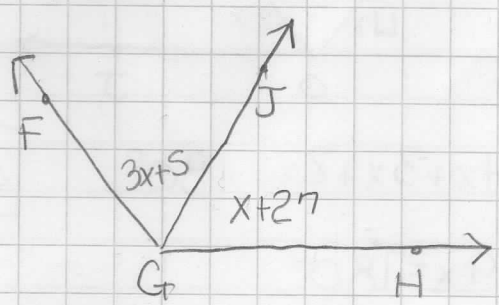


$\angle POK \cong MOK$

$\overrightarrow{OK}$

7. Given: $\angle FGJ = 3x-5$
$\angle JGH = x+27$

$\overrightarrow{GJ}$ bisects $\angle FGH$



Find $\angle FGJ$

$\angle FGJ = \angle JGH$ Why: definition of angle bisector

$3x-5 = x+27$

$2x = 32$

$x = 16$ Substitution

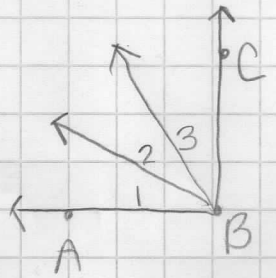
$\angle FGH = 3(16)-5 = 43$
$\angle JGH = 16+27 = 43$

(9.) Given: $\angle ABC = 90°$

$\angle 1 = (2x+10)°$

$\angle 2 = (x+20)°$

$\angle 3 = (3x)°$



Do in class

Has $\angle ABC$ been trisected?

Yes, $\angle ABC$ has been trisected

$2x+10 = x+20$

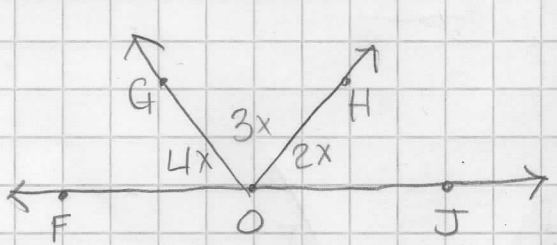
$x = 10$

$\angle 1 = [2(10)+10]° = [20+10]° = 30°$

$\angle 2 = (10+20)° = 30°$

$\angle 3 = (3(10))° = 30°$

(18) $\overrightarrow{OG}$ and $\overrightarrow{OH}$ divide straight angle FOJ into three angles whose measures are in the ratio of 4:3:2 Find $\angle FOG$



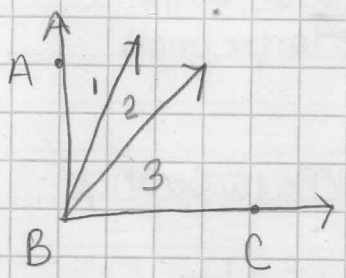
$4x+3x+2x = 180°$

$9x = 180°$

$x = 20°$

$\angle FOG = 4(20°) = 80°$

11. $\overleftrightarrow{AB} \perp \overleftrightarrow{BC}$ and angles 1, 2, and 3 are in the ratio 1:2:3 Find the measure of each angle



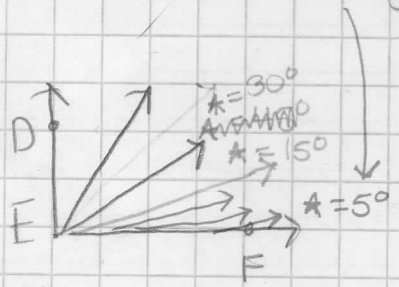
$1x+2x+3x=90^\circ$

$6x=90^\circ$

$x=15^\circ$

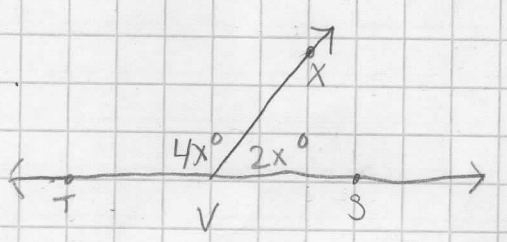
$\angle 1 = 1x = 15^\circ$
$\angle 2 = 2x = 30^\circ$
$\angle 3 = 3x = 45^\circ$

12. Line DE is perpendicular to line EF. *The resulting angle is trisected *then one of the new angles is bisected, and *then one of the resulting angles is trisected. How large is the smallest angle? Give answer in degrees.



P. 70

10. Find the measure of $\angle XVS$



$4x^\circ+2x^\circ=180^\circ$

$6x^\circ=180^\circ$

$x=30^\circ$

$\angle XVS = 2x^\circ = 2(30)^\circ = \boxed{60^\circ}$

11. One of two supplementary angles is 70° greater than the second. Find the measure of the larger angle.

x° = smaller angle
$x^\circ + 70^\circ$ = larger angle

$x^\circ + x^\circ + 70^\circ = 180^\circ$

$2x^\circ + 70^\circ = 180^\circ$

$2x^\circ = 110^\circ$

$x^\circ = 55^\circ$

$x^\circ + 70^\circ$ = larger angle

$55^\circ + 70^\circ$ = lar; ∠

125° = Large ∠

16. Two supplementary angles are in the ratio 11:7 find the measure of each.

$7x + 11x = 180^\circ$

$18x = 180^\circ$

$x = 10^\circ$

$7x = 70^\circ$

$11x = 110^\circ$

Honors Geom HW key
Assigned 8/18/17
due 8/21/17

P 14-17

1 Change to Deg. & Min

(a) $61\frac{2}{3}^\circ$

$61^\circ\ 40'$

(b) 71.7°

$71\frac{7}{10}^\circ$

$71^\circ\ 42'$

2 Change to Deg.

(a) $132^\circ\ 30'$

$132\ \frac{30}{60}^\circ$

$132\frac{1}{2}^\circ$

132.5°

(b) $19^\circ\ 45'$

$19\ \frac{45}{60}^\circ$

$19\frac{3}{4}^\circ$

19.75°

5. (a) $49^\circ\ 32'\ 55''$
$+\ 37^\circ\ 27'\ 15''$
$86^\circ\ 59'\ 70''$

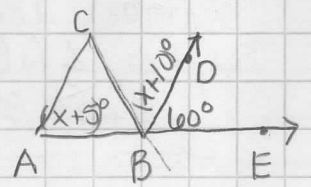
$87^\circ\ 00'\ 10''$

(b) $123^\circ\ 15'$
$-\ 40^\circ\ 26'$

$122^\circ\ 75'$
$-\ 40^\circ\ 26'$

$82^\circ\ 49'$

8. If $\angle CBD \cong \angle DBE$ Find $\angle A$



$(x+10)^\circ = 60^\circ$

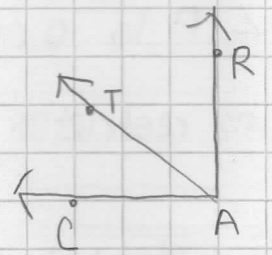
$x^\circ = 50^\circ$

$\angle A = x^\circ + 5^\circ$

$= 50^\circ + 5^\circ$

$= 55^\circ$

11.



Given: $\angle CAR$ is a right angle

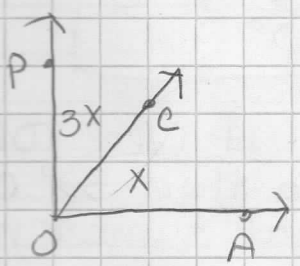
$\angle CAT = 37^\circ 66' 10''$

Find $\angle RAT$

$88^\circ\ 119'\ 60''$
$-\ 37^\circ\ 66'\ 10''$

$51^\circ\ 53'\ 50''$

16. IF $\angle POA$ is a right angle and if $\angle POC$ is $3x$ as large as $\angle COA$, find $\angle POC$



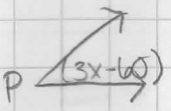
$4x = 90^\circ$

$x = 17\frac{1}{2}^\circ$ or 17.5°

$3x = 52.5^\circ$

(17) $\angle P$ is acute what are

(a) its restrictions?



$$0 < 3x-60 < 90$$

(b) what are the restrictions on x

$$60^\circ < 3x < 150^\circ$$

$$20^\circ < x < 50^\circ$$

(18) The hand is at the 12 on the clock. $360^\circ \div 12 = 30^\circ$ (degrees per # on clock face)

(a) If the hand were rotated 90° clockwise, at what number would it point?

$$\frac{90^\circ}{30^\circ} = 3$$

(b) If it were rotated 150° clockwise, and then 30° counter-clockwise, at what number would it point?

$150^\circ - 30^\circ = 120^\circ$

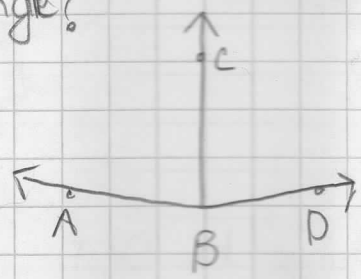
$$\frac{120^\circ}{30^\circ} = 4$$

19 $\angle ABC \cong \angle CBD$

if $\angle ABC = \left(\frac{3x}{2}+2\right)^\circ$ and

$\angle CBD = (2x - 29\frac{1}{4}^\circ)$

is $\angle ABD$ a straight angle?



$$\frac{3x}{2} + 2 = \frac{4}{2}x - 29.25$$

$$2 + 29.25 = \frac{1}{2}x$$

$$\frac{31.25}{.5} = \frac{.5x}{.5}$$

$$62.5 = x$$

$$\angle CBD = 2(62.5) - 29.25$$

$$= 125 - 29.25$$

$$= 95.75^\circ$$

if $\angle ABC = \angle CBD$
then $\angle ABC + \angle CBD$

$= 95.75 + 95.75 = 191.5$

which is greater than 180°

so, no $\angle ABD$ is not straight

(20) Change $15\frac{2}{9}^\circ$ to deg, min, & sec

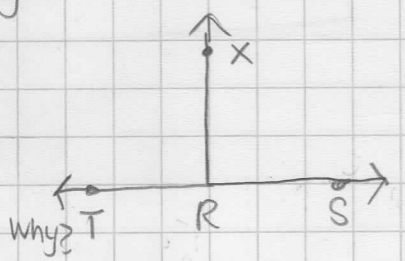
$15^\circ \quad \frac{2}{9} \cdot \frac{60}{1} = 13.\overline{3}$

$15^\circ \quad 13' \quad \frac{3}{10} \cdot \frac{60}{1} = 18$

$\boxed{15^\circ \quad 13' \quad 18''}$

(21) Given: $\angle TRS$ is a straight angle
$\angle TRX$ is a right angle
$\angle TRS = 2x + 5y$
$\angle XRS = 3x + 3y$

oops!



def of straight angle
$(180^\circ - 90^\circ) = 90^\circ$

If $\angle TRX$ is 90° $\angle XRS = 90^\circ$

$2x + 5y = 180$

$3x + 3y = 90$ ← Solve for x

$3x = 90 - 3y$

$x = 30 - y$ ← substitute

$2(30 - y) + 5y = 180$

$60 - 2y + 5y = 180$

$60 + 3y = 180$

$3y = 120$

$\boxed{y = 40}$

$x = 30 - 40$

$\boxed{x = -10}$

(23) Change $72°22'30''$ to degrees

$72° \; 22\frac{30}{60}'$

$72° \; 22.5'$

$72° \; \frac{22.5}{60}$

$72.375°$

$72\frac{375°}{1000} = 72\frac{3}{8}°$

(divide numerator & denominator by 125)