Honors CCGPS Analytic Geometry
Review – Basics of Geometry Unit 1B

Name Huff

1. If an $\angle$ measures 68° 28' 14'', what's the measure of its complement of half this angle?

Half of the ∡ is 34°14'07'' → now

$89\ 59\ 60$
$\cancel{90}\ \cancel{00}\ \cancel{00}$
$-34\ 14\ 07$

$\boxed{55°45'53''}$

2. The measure of an angle is 4 times the measure of its complement. What's the supplement of the angle?

$X = 4(90-x)$
$X = 360-4x$
$+4x \quad +4x$

$5x = 360$
$x = 72$

The suppl. is
$180 - 72$

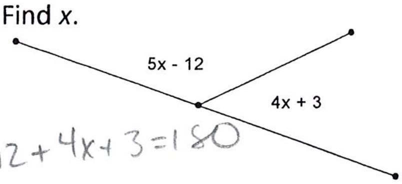
Fill in the blank:

3. If 2 angles are complementary, then they both have to be acute.

4. Angles that are supplementary and congruent are right angles.

5. The supplement of an obtuse angle has to be acute.

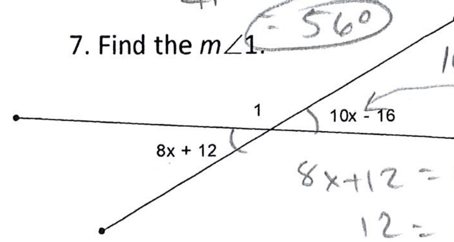
6. Find *x*.



$5x-12+4x+3=180$
$9x-9=180$
$9x=171$
$\boxed{x=19}$

7. Find the $m\angle 1$.

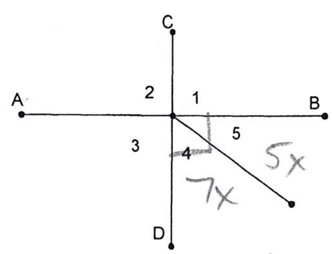
$\measuredangle 1 = 180 - 124$
$= 56°$



$10(14)-16$
$=124°$

$8x+12=10x-16$
$12=2x-16$
$28=2x$
$14=x$

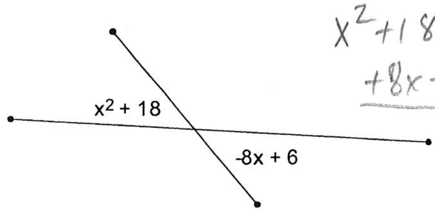
8. AB⊥CD. The measure of $\angle 4$ and $\angle 5$ are in the ratio 7:5. What are the measures of $\angle 4$ & $\angle 5$?



$7x+5x=90$
$12x=90$
$x=7.5$

$\measuredangle 5 = 5(7.5) = 37.5°$
$\measuredangle 4 = 7(7.5) = 52.5°$

9. Find *x* in the diagram below:



$x^2+18 = -8x+6$
$+8x-6 \quad +8x-6$
$x^2+8x+12=0$
$(x+6)(x+2)=0$
$\boxed{x=-6,-2}$

10. $\angle R = 132°$. $\angle R$ is bisected, then one of the resulting angles is trisected. What's the measure of one of the smallest angles?

$\frac{132}{2} = 66°$ $\frac{66}{3} = \boxed{22°}$

11. If 2 $\angle$s are supplementary to the same $\angle$, then they are ___Congruent___ to each other.

12. One of 2 supplementary angles is 4 more than twice the other. What is the measure of the angle? What's the measure of the complement of the angle?

$x + (2x+4) = 180$ $x \approx 58.7$

$3x+4 = 180$ Compl is $90 - 58.7 = 31.3°$

13. The measure of the supplement of an angle plus the complement of the same angle is 168°. What's the measure of the original angle?

$(180-x) + (90-x) = 168$

$270 - 2x = 168$ $\boxed{x = 51}$

$-2x = -102$

14. Use the diagram at right. Find x & y.

Given: $AB \perp BD$

$\angle ACB = x + y$

$\angle BCD = 2x + 4$

$\angle ABC = x + 20$

$\angle$ ~~BCD~~ CBD $= y + 10$

$(x+20) + (y+10) = 90$

$(x+y) + (2x+4) = 180$

$x + y = 60$

$3x + y = 176$

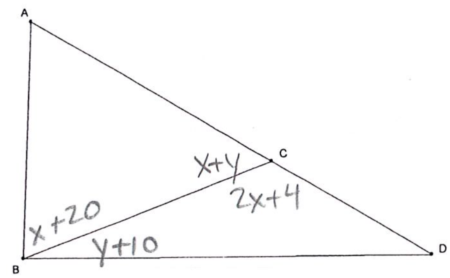
$y = (60 - x)$ then subst

$3x + (60-x) = 176$

$2x + 60 = 176$

$2x = 116$

$\boxed{x = 58}$



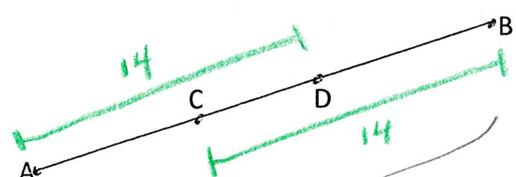
$\boxed{y = 60 - (58) = 2}$

15. AB = 24, AD = 14, $\overline{AD} \cong \overline{CB}$

CD = ___4___

AC = ___14−4=10___

DB = ___10___



$14 + 14 - CD = 24$

$28 - CD = 24$

$CD = 4$

16. $\angle ABC$ suppl $\angle DEF$, $\angle GHI$ suppl $\angle DEF$.

$\angle ABC = 5x - 3$ & $\angle GHI = 3x + 27$

Find $m\angle DEF$

$\cong$ Suppl Thm says that

$\angle ABC \cong \angle GHI$

$5x - 3 = 3x + 27$

$2x = 30$

$x = 15$

If $x = 15$

then $\angle ABC = 5(15) - 3$

$= 72°$

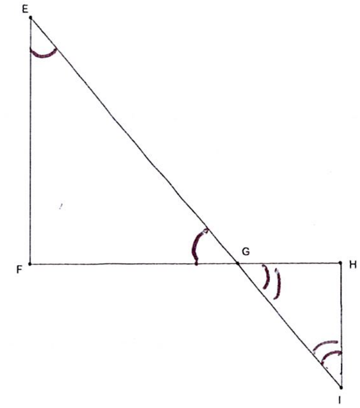
If $\angle ABC = 72°$,

then $\angle DEF = 180 - 72 = 108°$

19.

Given: $\angle E \cong \angle EGF$, $\angle I \cong \angle HGI$

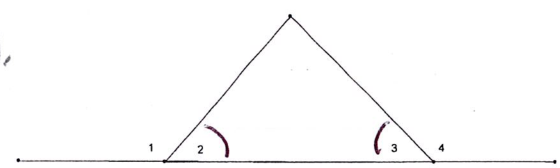
Prove: $\angle E \cong \angle I$



Statement	Reason
1. $\angle E \cong \angle EGF$, $\angle I \cong \angle HGI$	1. Given
2. $\angle EGF \cong \angle HGI$	2. Vertical Angles Thm
3. $\angle E \cong \angle I$	3. Substitution (or Transitive)

20. Given: $\angle 2 \cong \angle 3$
Prove: $\angle 1 \cong \angle 4$

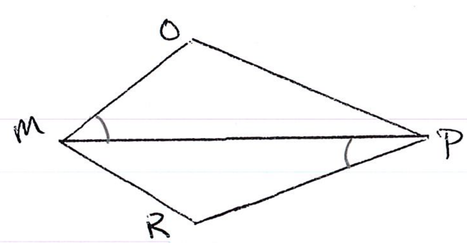
Double Suppl.



Statement	Reason
1. $\angle 2 \cong \angle 3$	1. Given
2. $\angle 1$ Suppl to $\angle 2$ $\angle 3$ Suppl to $\angle 4$	2. Linear Pairs
3. $\angle 1 \cong \angle 4$	3. Congruent Supplements Thm

21. Given: $\angle OMP \cong \angle RPM$
MP bisect $\angle OMR$
PM bisect $\angle OPR$
Prove: $\angle OMR \cong \angle OPR$

Double Bisect



① $\angle OMP \cong \angle RPM$ $\overline{MP}$ bis $\angle OMR$ $\overline{MP}$ bis $\angle OPR$	① given
② $\angle OMR \cong \angle OPR$	② Mult. Property