NAME Key work on other paper DATE _____ Pd ___

Honors GEOMETRY
FIRST SEMESTER REVIEW
Ch 1: 8, Ch. 2: 5, Ch. 3: 7, Ch. 4: 4, Ch. 5: 7 30 total Multiple Choice Questions

I. For each given statement, re-write the statement in "if...then" form. Then write the converse, inverse, and contrapositive of that statement.

1. All wizards wear long, pointed hats and carry staffs.

2. Only small-minded people have racial prejudices.

3. No children like to go to bed early.

II. Complete each of the following using inductive reasoning. Write a conjecture about the pattern.

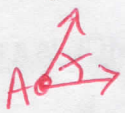
4. −1, 1, 3, 5 Conjecture: n+2
5. 4, 7, 12, 19 Conjecture: adding consecutive odd integers
6. 2, 4, 9, 17 Conjecture: add difference + 3 more
7. 1, 2, 5, 14, 41, 122 Conjecture: mult. diff. by 3 then add to previous

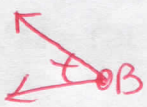
III. Answer the following questions.

8. What notation do we use when naming the following. Draw an example of each and label it.
   a. points A
   b. lines $\overleftrightarrow{AB}$ m
   c. planes ABCD
   d. rays $\overrightarrow{AB}$
   e. segments $\overline{AB}$
   f. angles ∠ABC, ∠B, ∠1
   g. triangle △ABC
9. What does it mean for segments to be congruent? Draw a figure where two segments are congruent. Label the picture.

Shape & size are the same

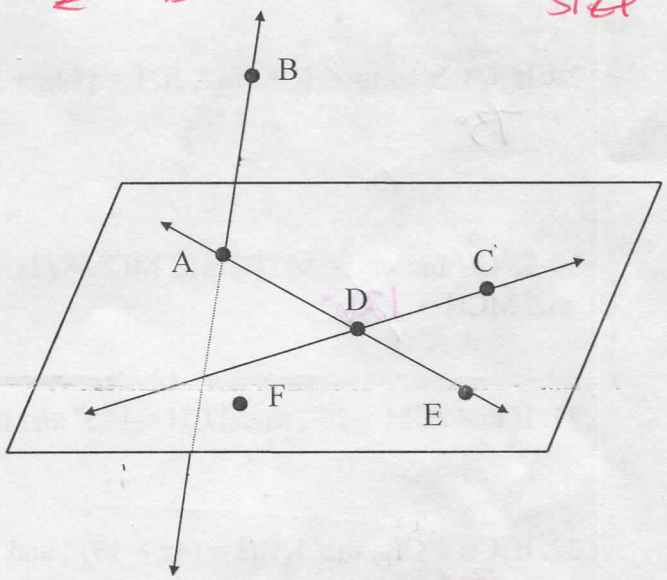
10. What does it mean for angles to be congruent? Draw a figure where two angles are congruent. Label the picture.





same shape & same size

IV. Use the diagram to classify each set of points as
(A) collinear
(B) coplanar, but not collinear
(C) noncoplanar



11. A A, F
12. B C, A, F
13. C D, C, E, B
14. B B, D, C
15. B A, D, B, E
16. A B, E

V. Use the diagram to answer each question. Show your equations and all work on all algebraic problems.

17. What is the slope of the line through (-2, -4) and (3, -7). $-\frac{3}{5}$

18. If a line has slope $-\frac{5}{4}$, what is the slope of a line parallel to this line? Same, $-\frac{5}{4}$

19. If a line has slope $-\frac{3}{2}$, what is the slope of any line perpendicular to this line? negative reciprocal, $\frac{2}{3}$

VI. Use the diagram to answer each question. Show your equations and all work on all algebraic problems.

20. Name the sides of ∠ TCM. $\overrightarrow{CT}$ $\overrightarrow{CM}$

21. What point is in the interior of ∠ JCL? M

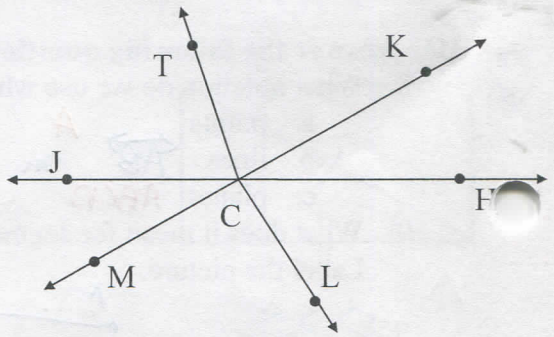
22. m∠ KCH + m∠ HCL = m∠ KCL.

23. If CK bisects ∠ TCH, then m∠ TCK = m∠ KCH.

24. m∠ JCL + m∠ LCH = 180°.

25. ∠ MCT and ∠ TCK form a linear pair of angles.

26. ∠ JCK and ∠ MCH are vertical angles.



27. If $\overrightarrow{CL} \perp \overleftrightarrow{MK}$, then m∠ KCL = 90°.

28. If $\overrightarrow{CT}$ bisects ∠ JCK, m∠ JCT = 84°, and ∠ MCL is a right angle, then m∠ LCH = 78°.

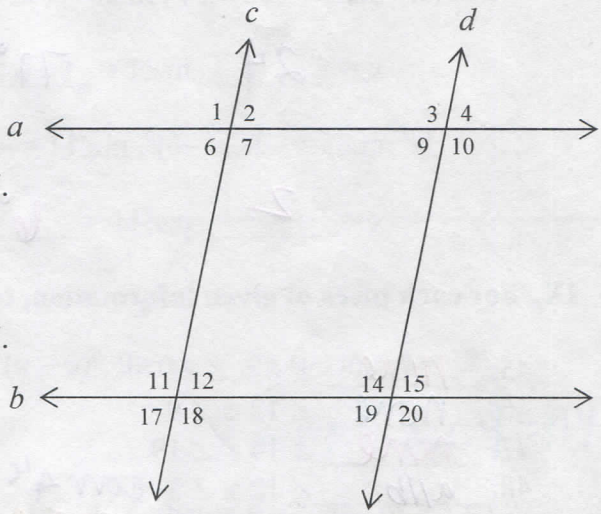
29. If $\overrightarrow{CT}$ bisects ∠ JCK, m∠ JCT = $(14x + 3)^\circ$ and m∠ JCK = $(30x - 4)^\circ$, then x = 5 and m∠ JCT = 73°

30. If $\overrightarrow{CL}$ bisects ∠ MCH, m ∠ MCL = $(2x + 17)^\circ$ and m∠ JCM = $(3x - 15)^\circ$, then x = 23 and m∠ MCH = 126°.

31. If m∠ JCM = 27°, m∠ TCH = 115° and m∠ TCL = 170°, then m∠ MCL = 98°.

32. If $\overrightarrow{CK} \perp \overrightarrow{CL}$, m∠ KCH = $(4x - 13)^\circ$, and m∠ HCL = $(5x + 4)^\circ$, then x = 11, and m∠ JCM = 31°.

VII. Use the diagram to answer the following:



33. If a // b, name all of the angles congruent to ∠ 10.

∠3, ∠14, ∠20

34. If c // d, name all of the angles supplementary to ∠ 17.

∠11, ∠18, ∠14, ∠20

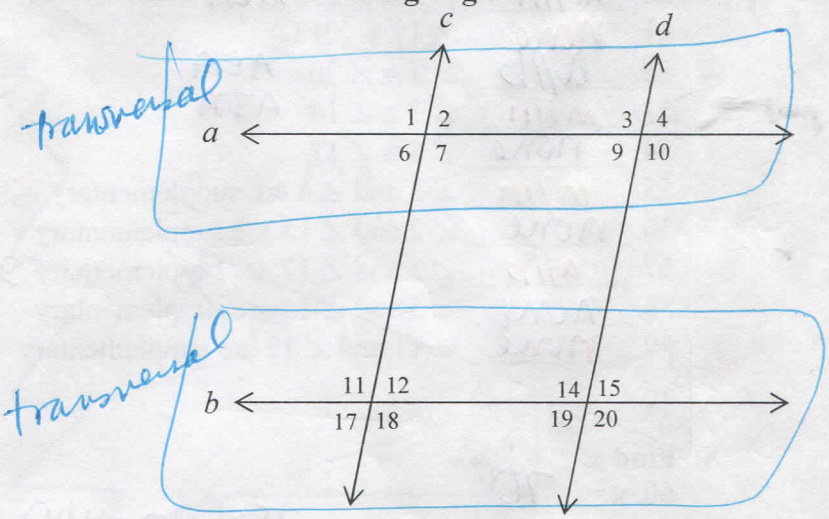
35. If d // c, name all of the angles congruent to ∠ 10.

∠1, ∠7, ∠3, ∠10

36. If b // a, name all of the angles supplementary to ∠ 17.

∠1, ∠7, ∠11, ∠18

VIII. If c // d, m∠2 = 136° and m∠14 = 54°, find the measures of the following angles.



37. 44° m∠ 7

38. 136° m∠ 9

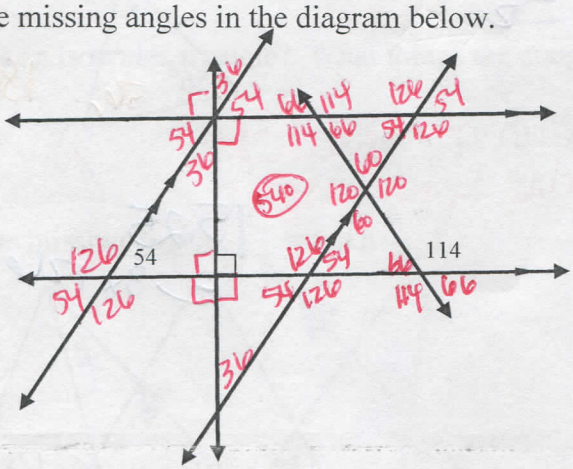
39. 44° m∠ 3

40. 54° m∠ 11

41. 126° m∠ 17

42. 54° m∠ 20

43. Find the missing angles in the diagram below.



vertical ∠'s
parallel lines
linear pairs
Triangle Sum Thm

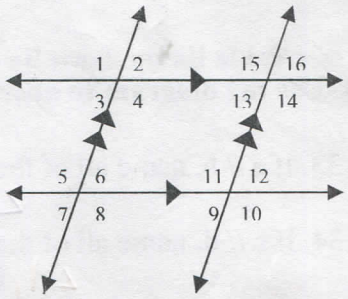
44. Find x and then the required angles in the diagram to the right.

a. $m\angle 1 = (3x + 5)^\circ$, $m\angle 6 = (4x + 7)^\circ$

x = 24 $m\angle 1$ = 77°, $m\angle 16$ = 103°

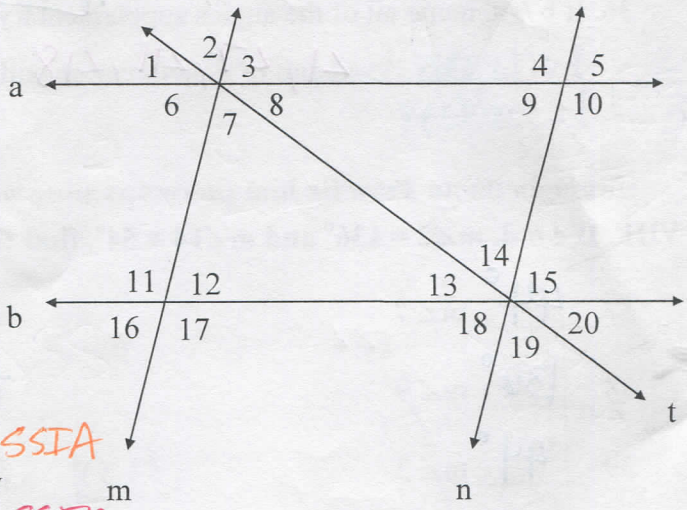
b. $m\angle 5 = -3(2x - 6)^\circ$, $m\angle 11 = -(6 - 6x)^\circ$

x = 2 $m\angle 11$ = 6° $m\angle 15$ = 6°



IX. For each piece of given information, tell which pair of lines (if any) must be parallel.

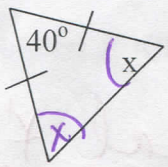
45. none $\angle 8 \cong \angle 14$
46. none $\angle 12 \cong \angle 9$
47. none $\angle 14 \cong \angle 19$
48. a//b $\angle 12 \cong \angle 3$ corr ∠'s
49. m//n $\angle 16 \cong \angle 15$ SSEA
50. m//n $\angle 2 \cong \angle 19$ AEA
51. none $\angle 17 \cong \angle 15$
52. a//b $\angle 1 \cong \angle 20$ AEA
53. m//n $\angle 7 \cong \angle 14$ AIA
54. none $\angle 8 \cong \angle 17$
55. m//n $\angle 3$ and $\angle 4$ are supplementary SSIA
56. none $\angle 2$ and $\angle 15$ are supplementary
57. a//b $\angle 3$ and $\angle 17$ are supplementary SSEA
58. none $\angle 5$ and $\angle 15$ are supplementary
59. none $\angle 11$ and $\angle 12$ are supplementary



X. Find x.

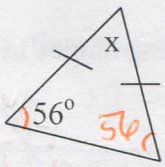
60. x = 70°

isosceles △



180 − 40 = 140 / 2

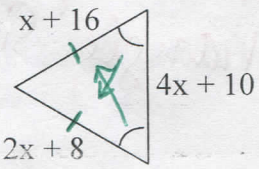
61. x = 68°



ISOS. △

180 − (56 + 56)

62. x = 8



$x + 16 = 2x + 8$

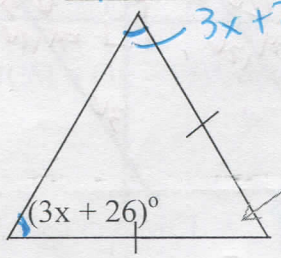
$-x \quad -x$

$16 = x + 8$

$-8 \quad -8$

$x = 8$

63. x = 15.25



$2(3x + 26) + 2x + 6 = 180$

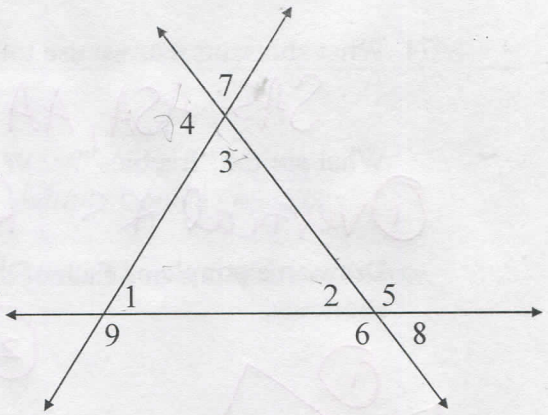
$6x + 52 + 2x + 6 = 180$

$8x + 58 = 180$

$8x = 122$

$x = 15.25$

XI. Use the diagram to answer the following .



64. 1 & 2 m∠ 4 = m∠ _?_ + m∠ _?_.

65. 64° If m∠ 1 = 37° and m∠ 5 = 101°, then m∠ 3 = _?_.

66. 50° If m∠ 3 = 68° and m∠ 1 = 62°, then m∠ 2 = _?_.

67. 51° If m∠ 7 = 73° and m∠ 5 = 124°, then m∠ 1 = _?_.

68. 93° If m∠ 7 = 52° and m∠ 8 = 41°, then m∠ 9 = _?_.

69. If m∠ 1 = (4x + 8)°, m∠ 2 = 2 (x + 2)° and m∠ 3 = 6 (x – 6)°, then x = _?_ and m∠ 4 = _?_

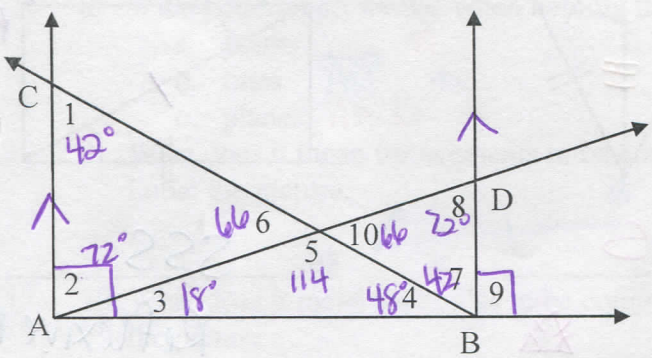
X = 17 m∠4 = 114°

70. If m∠ 6 = (6x + 23)°, m∠ 1 = (5x – 19)° and m∠ 3 = 7 (x – 12)°, then x = _?_ and m∠ 5 = _?_.

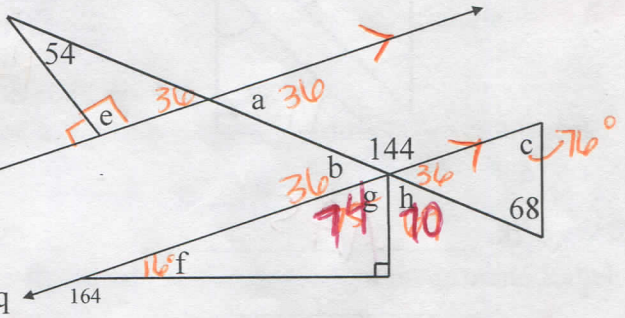
X = 21 m∠5 = 149°

71. Find the missing angle measures:

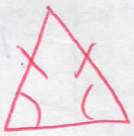
CA ⊥ AB, CA // DB, m∠1 = 42, m∠8 = 72



p // q

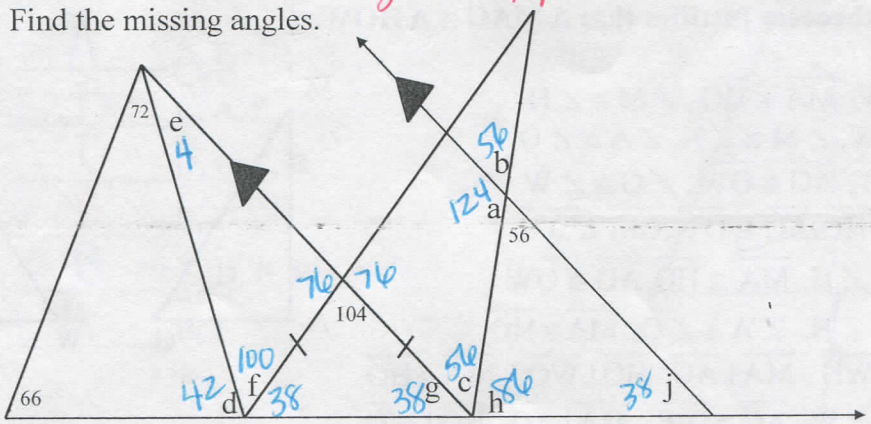


72. What is an isosceles triangle? What things are congruent in an isosceles triangle?



at least two sides ≅, and ∠ base angles opp. sides are ≅.

73. Find the missing angles.



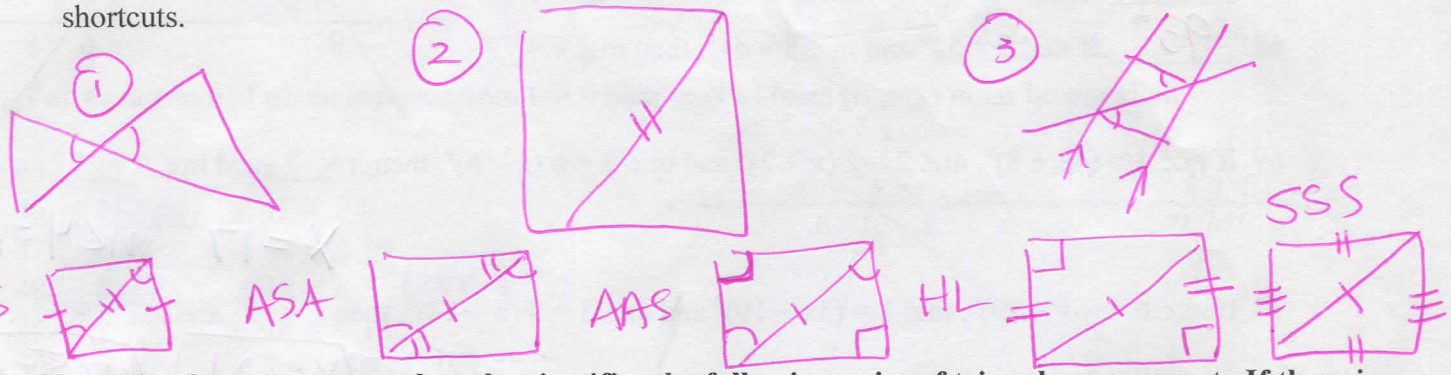
74. What shortcuts can we use to show that triangles are congruent?

SAS, ASA, AAS, HL, SSS

What are the "freebies"?

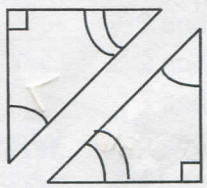
① Vertical ∠'s, ② Reflexive POC, ③ Parallel lines AIA corr

Draw an example of each of the freebies and draw pairs of triangles that are examples for the shortcuts.

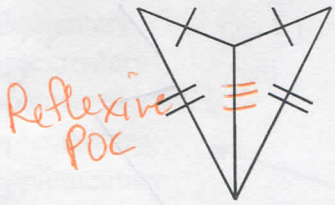


XII. Name the theorem or postulate that justifies the following pairs of triangles congruent. If there is not enough information, write none.

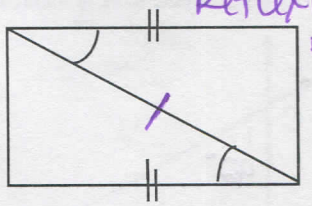
75. none



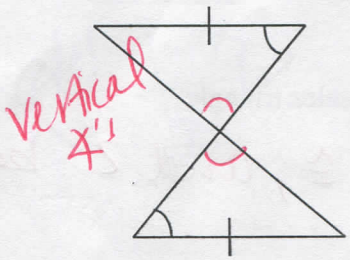
76. SSS



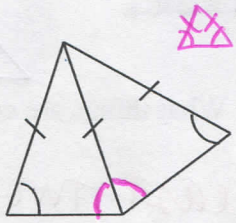
77. SAS



78. AAS

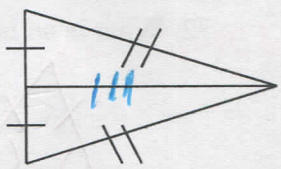


79. AAS

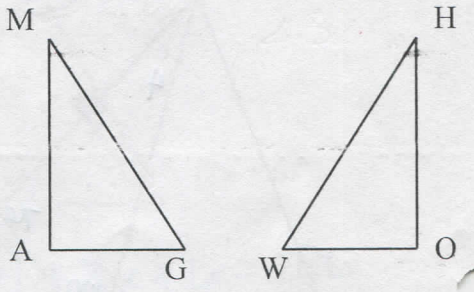


80. SSS

Reflexive POC



XIII. Tell which postulate or theorem justifies that Δ MAG ≅ Δ HOW.



81. AAS ∠G ≅ ∠W, $\overline{MA} \cong \overline{HO}$, ∠M ≅ ∠H

82. none ∠G ≅ ∠W, ∠M ≅ ∠H, ∠A ≅ ∠O

83. SAS $\overline{GM} \cong \overline{WH}$, $\overline{AG} \cong \overline{OW}$, ∠G ≅ ∠W

84. SSS $\overline{MA} \cong \overline{HO}$, $\overline{AG} \cong \overline{OW}$, $\overline{GM} \cong \overline{WH}$

85. none ∠M ≅ ∠H, $\overline{MA} \cong \overline{HO}$, $\overline{AG} \cong \overline{OW}$

86. ASA ∠M ≅ ∠H, ∠A ≅ ∠O, $\overline{MA} \cong \overline{HO}$

87. HL $\overline{GM} \cong \overline{WH}$, $\overline{MA} \perp \overline{AG}$, $\overline{HO} \perp \overline{WO}$, $\overline{MA} \cong \overline{HO}$

88. ASA ∠G ≅ ∠W, $\overline{AG} \cong \overline{OW}$, $\overline{MA} \perp \overline{AG}$, $\overline{HO} \perp \overline{WO}$