NAME _____DATE _____ Pd ___

Honors GEOMETRY
FIRST SEMESTER REVIEW
Ch 1: 10, Ch. 2: 5, Ch. 3: 8, 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, _____   Conjecture: _____
5. 4, 7, 12, _____   Conjecture: _____
6. 2, 4, 9, _____   Conjecture: _____
7. 1, 2, 5, 14, 41, _____ Conjecture: _____

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   d. rays   g. triangle
   b. lines   e. segments
   c. planes   f. angles

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

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

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

11. _____ A, F

12. _____ C, A, F

13. _____ D, C, E, B

14. _____ B, D, C

15. _____ A, D, B, E

16. _____ B, E
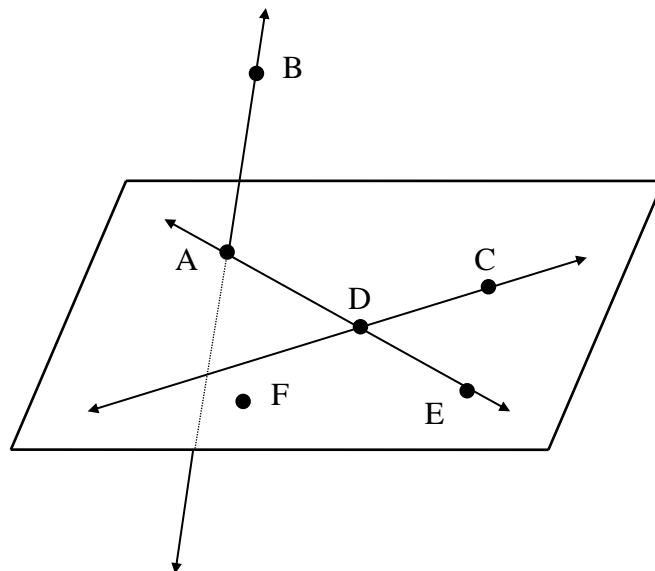
V. Use the diagram to answer each question. Show your equations and all work on all algebraic problems.

17. What is the slope of the line through (-2, -4) and (3, -7).

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

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

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

20. Name the sides of ∠ TCM.

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

22. m∠ KCH + m∠ HCL = m∠ _____.

23. If CK bisects ∠ TCH, then m∠ _____ = m∠ _____.

24. m∠ JCL + m∠ LCH = _____.

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

26. ∠ JCK and ∠ _____ are vertical angles.

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

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

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

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

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

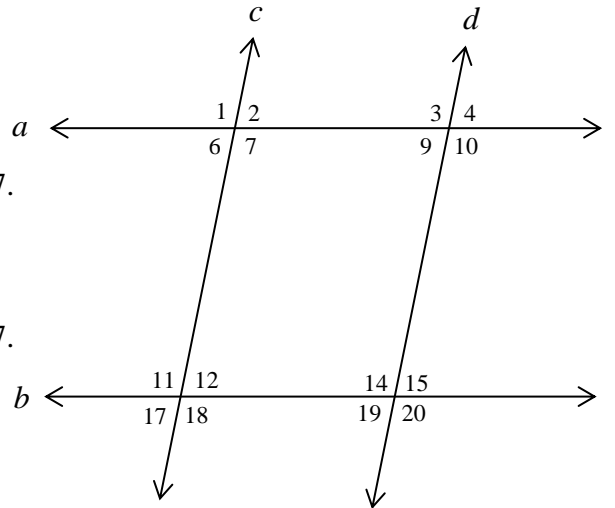32. If $\overrightarrow{CK} \perp \overrightarrow{CL}$, m∠ KCH = $(4x - 13)^{o}$, and m∠ HCL = $(5x + 4)^{o}$, then x = _____, and m∠ JCM = _____.
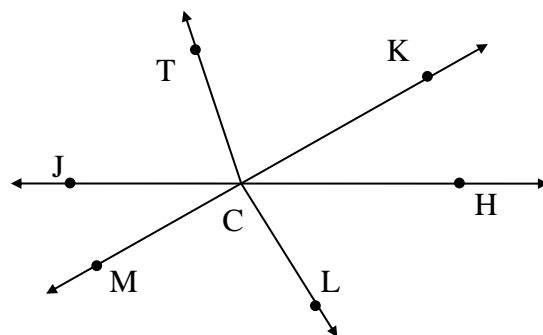
VII. Use the diagram to answer the following:

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

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

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

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

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

37. _____ m∠ 7

38. _____ m∠ 9

39. _____ m∠ 3

40. _____ m∠ 11

41. _____ m∠ 17

42. _____ m∠ 20
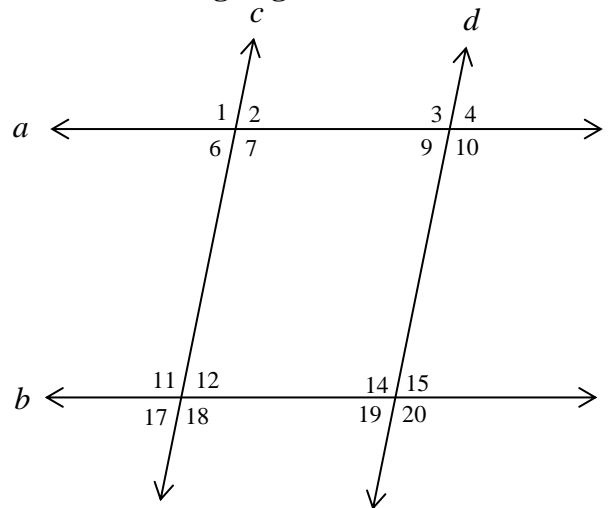
43. Find the missing angles in the diagram below.
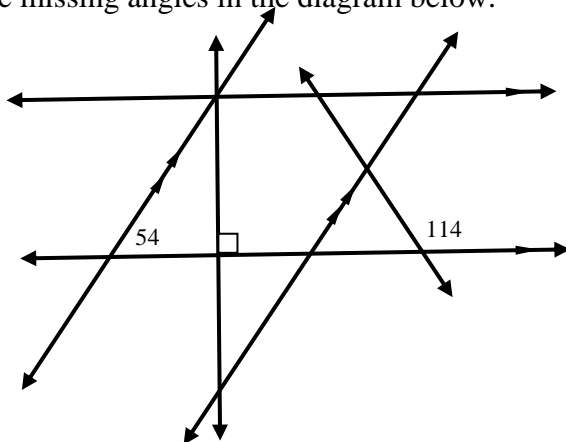
44. Find x and then the required angles in the diagram to the right.

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

x = _____ m∠1 = _____, m∠16 = _____

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

x = _____ m∠11 = _____ m∠15 = _____
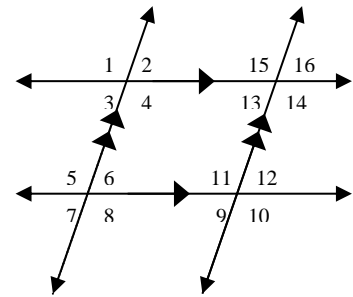
IX. For each piece of given information, tell which pair of lines (if any) must be parallel.

45. _____ ∠ 8 ≅ ∠ 14
46. _____ ∠ 12 ≅ ∠ 9
47. _____ ∠ 14 ≅ ∠ 19
48. _____ ∠ 12 ≅ ∠ 3
49. _____ ∠ 16 ≅ ∠ 15
50. _____ ∠ 2 ≅ ∠ 19
51. _____ ∠ 17 ≅ ∠ 15
52. _____ ∠ 1 ≅ ∠ 20
53. _____ ∠ 7 ≅ ∠ 14
54. _____ ∠ 8 ≅ ∠ 17
55. _____ ∠ 3 and ∠ 4 are supplementary
56. _____ ∠ 2 and ∠ 15 are supplementary
57. _____ ∠ 3 and ∠ 17 are supplementary
58. _____ ∠ 5 and ∠ 15 are supplementary
59. _____ ∠ 11 and ∠ 12 are supplementary

X. Find x.

60. x = _____

40°
x

61. x = _____

x
56°

62. x = _____

x + 16
4x + 10
2x + 8

63. x = _____

(3x + 26)°   (2x + 6)°
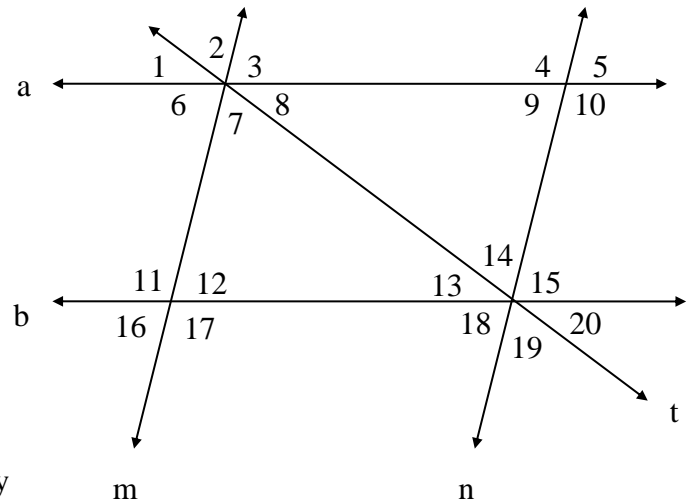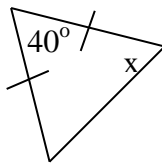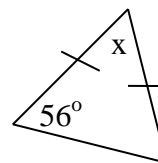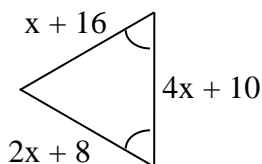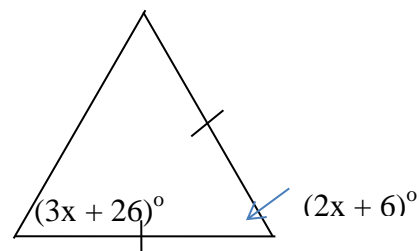
XI. Use the diagram to answer the following .

64. _____ & _____ m∠ 4 = m∠ _?_ + m∠ _?_.

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

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

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

68. _____ If m∠ 7 = 52° and m∠ 8 = 41°, then m∠ 9 = _?_.
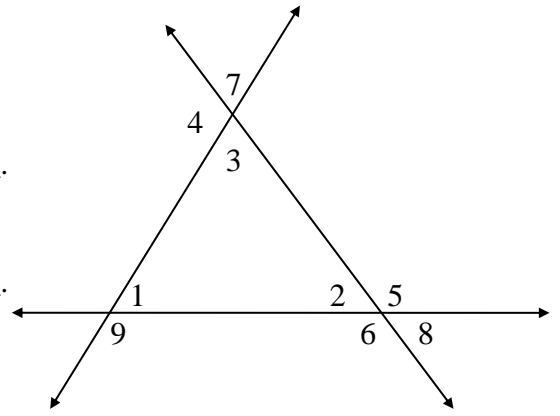
69. If m∠ 1 = (4x + 8)°, m∠ 2 = 2 (x + 2)° and m∠ 3 = 6 (x − 6)°, then x = _?_ and m∠ 4 = _?_

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

71. Find the missing angle measures:
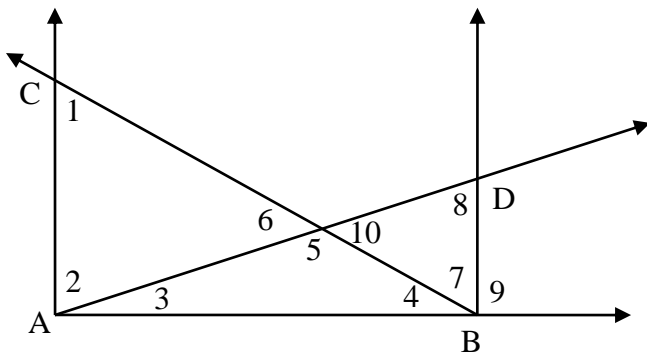
CA ⊥ AB, CA // DB, m∠1 = 42, m∠8 = 72   p // q
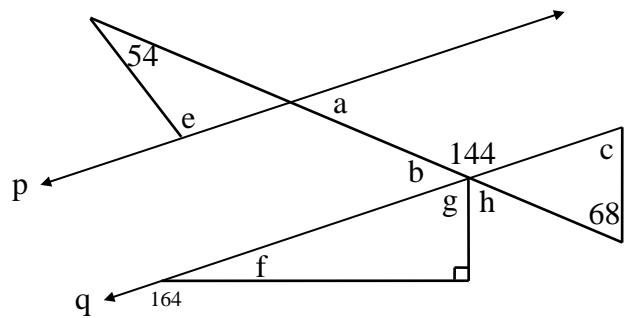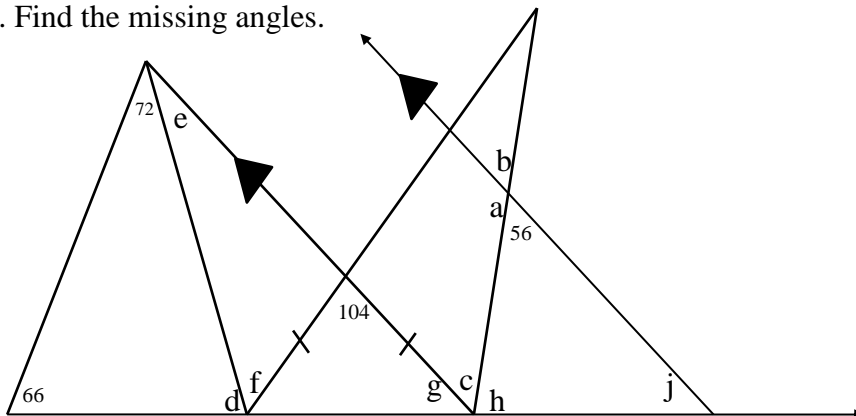
72. What is an isosceles triangle? What things are congruent in an isosceles triangle?
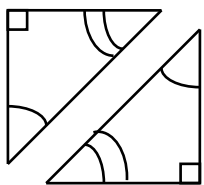
73. Find the missing angles.

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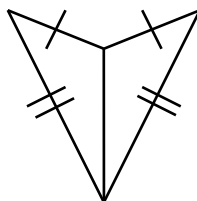
What are the "freebies"?

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.
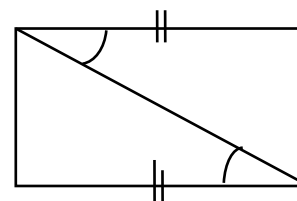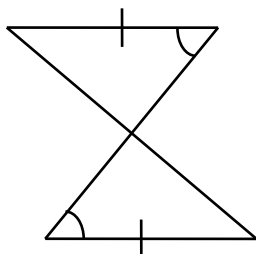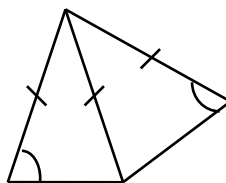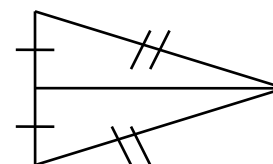
75. _____

76. _____

77. _____

78. _____

79. _____

80. _____

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

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

82. _____ ∠ G ≅ ∠ W, ∠ M ≅ ∠ H, ∠ A ≅ ∠ O

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

84. _____ $\overline{MA}$ ≅ $\overline{HO}$, $\overline{AG}$ ≅ $\overline{OW}$, $\overline{GM}$ ≅ $\overline{WH}$

85. _____ ∠ M ≅ ∠ H, $\overline{MA}$ ≅ $\overline{HO}$, $\overline{AG}$ ≅ $\overline{OW}$

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

87. _____ $\overline{GM}$ ≅ $\overline{WH}$, $\overline{MA}$⊥$\overline{AG}$, $\overline{HO}$⊥$\overline{WO}$, $\overline{MA}$ ≅ $\overline{HO}$

88. _____ ∠ G ≅ ∠ W, $\overline{AG}$ ≅ $\overline{OW}$, $\overline{MA}$⊥$\overline{AG}$, $\overline{HO}$⊥$\overline{WO}$

M   H

A   G   W   O