



GEOMETRY EXAM – CHAPTERS 5 & 6

DIRECTIONS: You may use a calculator, compass, straight edge, protractor, and pencil only. No book or notes allowed. Where work should be shown you will receive no credit without sufficient work to justify your answer. (When in doubt show organized work!) Where units are required points will be deducted for failure to include them or for using incorrect units. For multiple choice questions please state the capital letter(s) corresponding to your choice(s).

Please write legibly and ensure your upload is dark enough to be read when graded. Please upload as a .pdf and ensure all pages are upright and included in a single document. You may use other paper for your own scratch work. However, only the work shown on this document will be graded. Time limit is **3 hours**.

For each, match the "Option" at the right to the definition/illustration below:

1. Given x and y , x may be greater than, less than, or equal to y .
2. IF $p < q$ and $q < r$ THEN $p < r$.
3. $\angle ABC > \angle DEF$ so $\angle ABC + 5^\circ > \angle DEF + 5^\circ$
4. $DE < FG$ so $DE - 1.3m < FG - 1.3m$
5. $Z > Y$ so $r \cdot Z > r \cdot Y$
6. $100 < 75$ so $4 < 3$
7. IF $a > b$ and $c > d$ THEN $a + c > b + d$
8. $\angle DEF = \angle GHI + \angle JKL$, so $\angle DEF > \angle JKL$

<u>Options</u>	
A. 3 Possibilities Property	1. _____
B. Addition Property	2. _____
C. Transitive Property	3. _____
D. Addition Theorem	4. _____
E. Whole is Greater than Part Theorem	5. _____
F. Subtraction Theorem	6. _____
G. Division Property	7. _____
H. Multiplication Property	8. _____

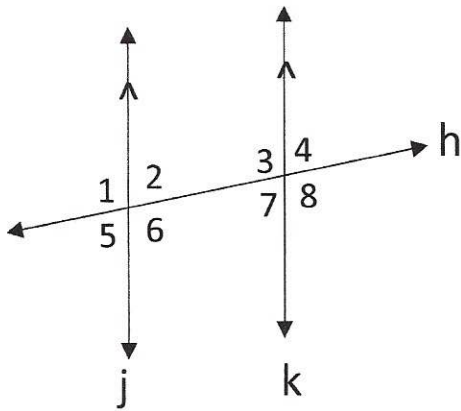
Fill in each blank(s) (print your answer in the answer blank to the right)

9. An exterior angle forms a _____ with an angle of the triangle.
10. An exterior angle of a triangle is greater than either _____ angle.
11. If 2 sides of a triangle are unequal, the _____ opposite them are unequal in the same order.
12. The sum of any 2 sides of a triangle is _____ than the _____ side.
13. Two points are symmetric with respect to a line IFF the line is the _____ of the line segment connecting the two points.
14. Two lines are _____ IFF they line in the same plane and do not intersect.

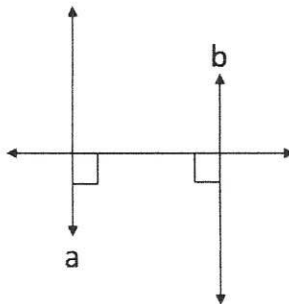
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____

15. A _____ is a line that "goes across" or "intersects" 2 or more lines in different points.
16. IF alternate interior angles are _____ THEN lines are parallel.
17. IF same side interior angles are _____ THEN lines are parallel.
18. IF lines are parallel THEN corresponding angles are _____.
19. In a plane, 2 lines are perpendicular to a third line are _____.
20. In a plane, 2 lines are parallel to a third line are _____ to each other.
21. Through a point not on a line there is _____ line parallel to the given line.
22. IF 2 angles of 1 triangle are equal to 2 angles of another triangle THEN the _____ angles are _____.
23. The acute angles of a right triangle are _____.
24. An exterior angle of a triangle is equal to the sum of the _____ angles.

15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

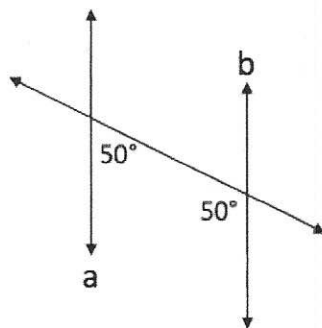


25. Name the transversal
26. With which angle does $\angle 2$ correspond?
27. Write the equation relating those 2 corresponding angles.
28. With which angle is $\angle 2$ alternate interior?
29. Write the equation relating those 2 alternate interior angles.
30. With which angle is $\angle 2$ same side interior?
31. Write the equation relating those 2 same side interior angles.
32. With which angle is $\angle 2$ vertical?
33. Write the equation relating those 2 vertical angles.
34. Name an angle with which $\angle 2$ makes a linear pair?
35. Write the equation relating the 2 angles in that linear pair.
36. Are lines a and b necessarily parallel?



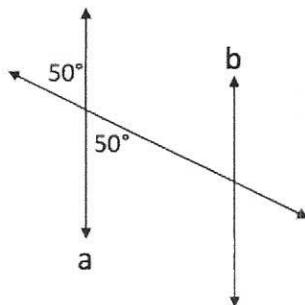
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____
31. _____
32. _____
33. _____
34. _____
35. _____
36. _____

37. Are lines a and b necessarily parallel?



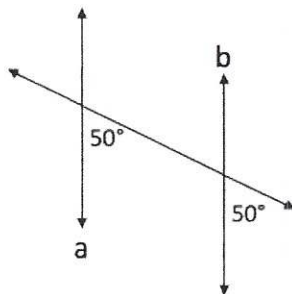
37. _____

38. Are lines a and b necessarily parallel?



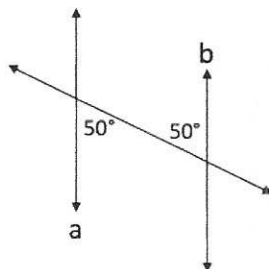
38. _____

39. Are lines a and b necessarily parallel?



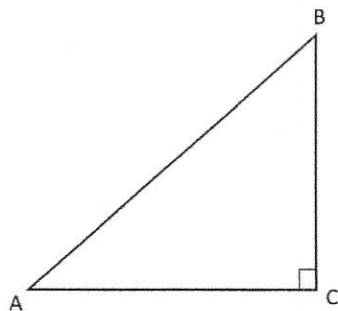
39. _____

40. Are lines a and b necessarily parallel?



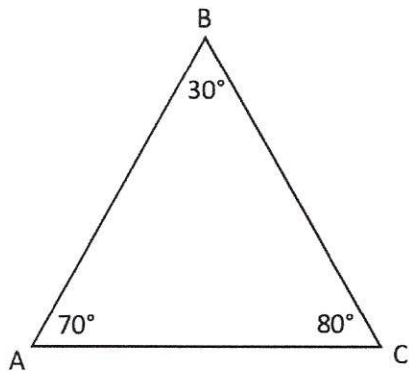
40. _____

41. What is the sum of angles A and B?



41. _____

42. Given this triangle (NOT drawn to scale) list the *sides* in order from shortest to longest.

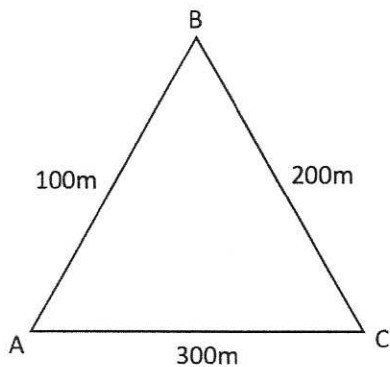


42. Shortest _____

Middle _____

Longest _____

43. Given this triangle (NOT drawn to scale) list the *angles* in order from smallest to greatest. (You may name them using an angle symbol and a single letter)

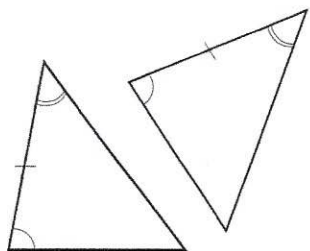


43. Smallest _____

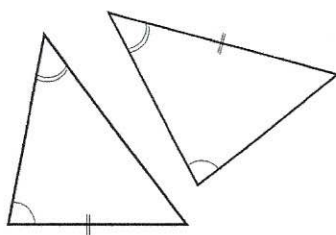
Middle _____

Greatest _____

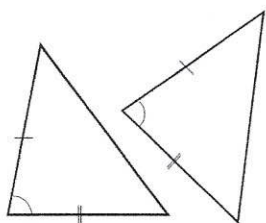
By which theorem is each pair of triangles congruent. IF they are not congruent then write "NOT."



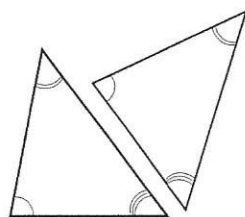
#51



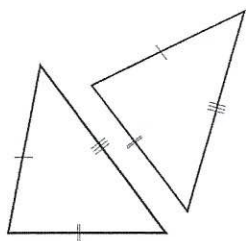
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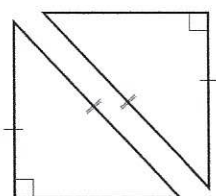
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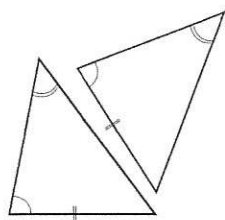
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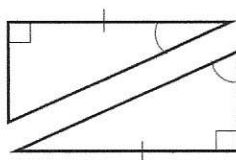
#55



#56



#57



#58

51. _____

52. _____

53. _____

54. _____

55. _____

56. _____

57. _____

58. _____

Read the following statements (59-61) carefully and mark them "T" or "F".

59. If 2 lines are cut by a transversal, the corresponding angles are always equal.

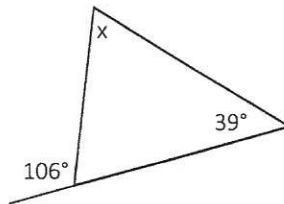
60. The sum of the angles of a scalene triangle is 180°

61. Each exterior angle of an equilateral triangle has a measure of 120°

62. In $\triangle ABC$ (not shown), $AB = 5$ and $BC = 8$. What is the possible range of AC ?

63. What equation will you write to find the measure of "x"?

64. Compute x



59. _____

60. _____

61. _____

62. _____ $< AC <$ _____

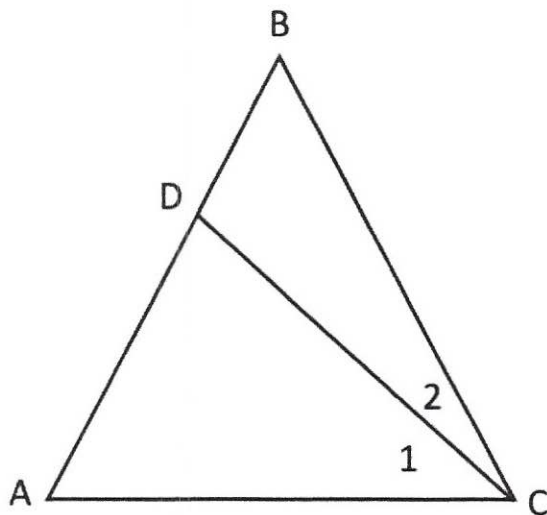
63. _____

64. $x =$ _____ $^\circ$

65. Supply the reasons for the following proof.

Must print clearly and legibly to receive any credit.
(Recommend: Mark the diagram as you go)

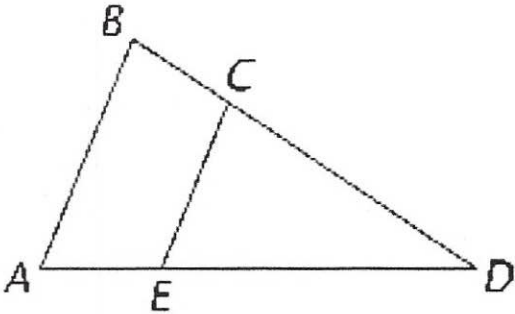
GIVEN: In $\triangle ABC$, $AB = BC$
PROVE: $DC > AD$



<u>Statements</u>	<u>Reasons</u>
1. In $\triangle ABC$, $AB = BC$	1. _____
2. $\angle A = \angle BCA$	2. _____
3. $\angle BCA = \angle 1 + \angle 2$	3. _____
4. $\angle BCA > \angle 1$	4. _____
5. $\angle A > \angle 1$	5. _____
6. $DC > AD$	6. _____

66. Write a complete proof for the following.
 You will not likely need all the spaces provided.

Given: $EC \parallel AB$ in $\triangle ABD$
 Prove: $\angle AEC > \angle B$



STATEMENTS	REASONS
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____
6. _____	6. _____
7. _____	7. _____
8. _____	8. _____

67. CONSTRUCT a line *perpendicular* to line a through point P . Must show all necessary marks to receive credit.

