

Part I - Match the expression on the left with the expression on the right that best matches it. Print the letters neatly next to each number. If I can't tell what letter you wrote, it will be marked incorrect. (1 point each)

- | | |
|---|---|
| 1. ___ Transitive Property of Inequality | A. If $OA-OB-OC$, then $\angle AOB + \angle BOC = \angle AOC$ |
| 2. ___ Betweenness of Points Theorem | B. Angles whose sum is 180° |
| 3. ___ Transversal | C. Either $a > b$, $a = b$, or $a < b$ |
| 4. ___ Complementary angles | D. Quadrilateral whose opposite sides are parallel |
| 5. ___ Diagonal | E. Angle that forms a linear pair with an angle of a triangle |
| 6. ___ Betweenness of Rays Theorem | F. Angles whose sum is 90° |
| 7. ___ Congruent triangles | G. $OA-OB-OC$ iff $a < b < c$ or $a > b > c$ |
| 8. ___ Rectangle | H. Lines in the same plane that do not intersect |
| 9. ___ Perpendicular lines | I. If $a > 0$, $b > 0$, and $a + b = c$, then $c > a$ and $c > b$ |
| 10. ___ Betweenness of points definition | J. Line that intersects two or more lines in different points |
| 11. ___ Parallelogram | K. Two angles such that the sides of one angle are opposite rays to the sides of the other |
| 12. ___ Addition Property of Inequality | L. Two angles having a common side and their other sides are opposite rays |
| 13. ___ Vertical angles | M. If $a > b$ and $b > c$, then $a > c$ |
| 14. ___ Exterior angle | N. Two lines forming a right angle |
| 15. ___ "Three Possibilities" Property | O. Line segment that connects any two nonconsecutive vertices |
| 16. ___ Linear pair | P. Quadrilateral each of whose angles is a right angle |
| 17. ___ Parallel lines | Q. $A-B-C$ iff $a < b < c$ or $a > b > c$ |
| 18. ___ Supplementary angles | R. Two triangles possessing a correspondence between their vertices such that all of their corresponding sides and angles are equal |
| 19. ___ Betweenness of rays definition | S. If $a > b$, then $a + c > b + c$ |
| 20. ___ "Whole Greater than Part" Theorem | T. If $A-B-C$, then $AB + BC = AC$ |

Part II - Fill in the blank with the appropriate verbal or mathematical expression to complete the given definition, postulate, theorem, or corollary. (3 points each)

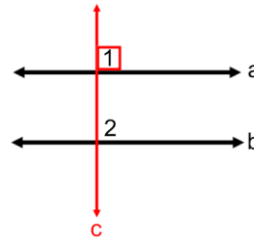
21. Equal alternate interior angles mean that lines are _____
22. Through a point not on a line, there is exactly one _____
23. Parallel lines form supplementary _____
24. An exterior angle of a triangle is equal to the sum of _____
25. The diagonals of a parallelogram _____
26. A quadrilateral is a parallelogram if its opposite angles are _____
27. If two angles of a triangle are unequal, the sides opposite them are _____
28. A point is on the midpoint of a line segment iff it _____
29. The angles in a linear pair are _____
30. Vertical angles are _____

Part III – Fill in the missing statements and/or reasons in the following proofs. (2 points each)

Theorem: In a plane, a line perpendicular to one of two parallel lines is also perpendicular to the other.

Given: $c \perp a$ and $a \parallel b$

Prove: $c \perp b$

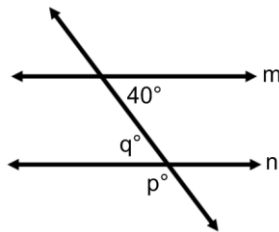


Statements

<u>Statements</u>	<u>Reasons</u>
$c \perp a$	Given
31. $\angle 1$ is a right angle	_____
32. _____	Right angles measure 90°
$a \parallel b$	Given
33. _____	Parallel lines form equal corresponding angles
34. $\angle 2 = 90^\circ$	_____
35. $\angle 2$ is a right angle	_____
36. $c \perp b$	_____

Given: $m \parallel n$

Prove: $p^\circ - q^\circ = 100^\circ$

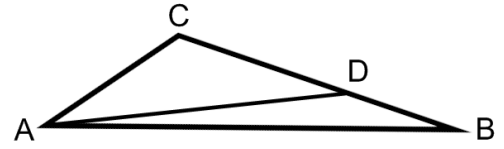


Statements

<u>Statements</u>	<u>Reasons</u>
$m \parallel n$	Given
37. $q^\circ = 40^\circ$	_____
38. q° and p° are supplementary	_____
39. _____	Supplementary angles sum to 180°
$40^\circ + p^\circ = 180^\circ$	Substitution
40. _____	Subtraction and simplification
41. $p^\circ - q^\circ = 100^\circ$	_____

Theorem: If two sides of a triangle are unequal, the angles opposite them are unequal in the same order.

Given: $\triangle ABC$ with $BC > AC$



42. Prove: _____

Statements

$\triangle ABC$ with $BC > AC$

Choose D on CB so that $CD = CA$

43. Draw AD

44. _____

45. $\angle CAB = \angle CAD + \angle DAB$

46. $\angle CAB > \angle CAD$

$\angle CAB > \angle CDA$

47. $\angle CDA > \angle B$

48. _____

Reasons

Given

Ruler Postulate

If two sides of a triangle are equal, the angles opposite them are equal.

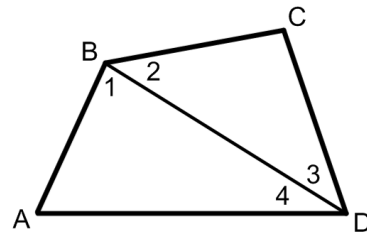
Substitution

Transitive

Theorem: The sum of the angles of a quadrilateral is 360° .

49. Given: _____

50. Prove: _____



Statements

51. _____

52. $\angle A + \angle 1 + \angle 4 = 180^\circ$ and
 $\angle 2 + \angle 3 + \angle C = 180^\circ$

53. _____

54. _____ and

55. _____

Reasons

Two points define a line

Addition & Simplification

Betweenness of Rays Theorem
