

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. ___ Isometry | A. A line segment that connects the midpoints of two sides of a triangle |
| 2. ___ Betweenness of Points Theorem | B. Quadrilateral that has exactly one pair of parallel sides |
| 3. ___ Diagonal | C. The composite of two successive reflections through parallel lines |
| 4. ___ Supplementary angles | D. Quadrilateral whose opposite sides are parallel |
| 5. ___ Transversal | E. Angle that forms a linear pair with an angle of a triangle |
| 6. ___ Betweenness of Rays Theorem | F. Angles whose sum is 180° |
| 7. ___ Congruent triangles | G. A one-to-one correspondence between two sets of points |
| 8. ___ Rectangle | H. Lines in the same plane that do not intersect |
| 9. ___ Parallel lines | I. The composite of two successive reflections through intersecting lines |
| 10. ___ Midsegment | J. Line that intersects two or more lines in different points |
| 11. ___ Parallelogram | K. If $A-B-C$, then $AB+BC=AC$ |
| 12. ___ Glide reflection | L. Quadrilateral all of whose sides and angles are equal |
| 13. ___ Rhombus | M. A transformation that preserves distance and angle measure |
| 14. ___ Exterior angle | N. Two lines forming a right angle |
| 15. ___ Translation | O. Line segment that connects any two nonconsecutive vertices of a polygon |
| 16. ___ Square | P. Quadrilateral each of whose angles is a right angle |
| 17. ___ Perpendicular lines | Q. If $OA-OB-OC$, then $\angle AOB+\angle BOC=\angle AOC$ |
| 18. ___ Trapezoid | R. Two triangles possessing a correspondence between their vertices such that all of their corresponding sides and angles are equal |
| 19. ___ Transformation | S. The composite of a translation and a reflection in a line parallel to the direction of the translation |
| 20. ___ Rotation | T. Quadrilateral all of whose sides are equal |

Part II – Fill in the blank with the appropriate verbal or mathematical expression to complete the given **postulate, theorem, or corollary. Note that these are not definitions.**

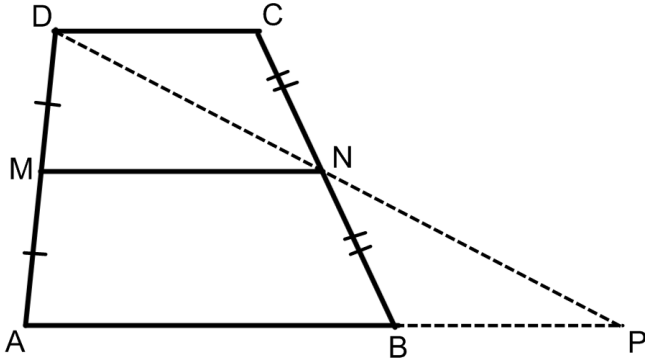
21. An exterior angle of a triangle is equal to the sum of _____
22. The diagonals of a rhombus are _____
23. The base angles of an isosceles trapezoid are _____
24. Parallel lines form supplementary _____
25. The diagonals of a parallelogram _____
26. The diagonals of an isosceles trapezoid are _____
27. If two angles of a triangle are unequal, the sides opposite them are _____
28. Equal alternate interior angles mean that lines are _____
29. The angles in a linear pair are _____
30. A midsegment of a triangle is _____
and _____

Part III – Fill in the missing statements and/or reasons in the following proofs.

Theorem: The midsegment of a trapezoid is parallel to the bases and has length equal to the average lengths of the bases.

Given: M and N are midpoints of the legs of trapezoid ABCD

Prove: $MN \parallel AB$, $MN \parallel DC$, and $MN = \frac{1}{2}(AB + DC)$



Statements

ABCD is a trapezoid with bases AB and DC

Reasons

Given

Draw line DN and extend AB to intersect it at P

Two points define a line

31. $\angle DNC = \angle PNB$

32. $DC \parallel AB$

$\angle DCN = \angle PBN$

Parallel lines form equal alternate interior angles

33. $\triangle DNC \cong \triangle PNB$

34. $DN = PN$

35. N is the midpoint of DP

MN is a midsegment of triangle ADP

Definition of midsegment of a triangle

36. $MN \parallel AB$

37. _____

Two lines parallel to the same line are parallel to each other

38. $DC = BP$

39. $AP = AB + BP$

40. $AP = AB + DC$

41. $MN = \frac{1}{2}AP$

42. $MN = \frac{1}{2}(AB + DC)$

Theorem: A quadrilateral is a parallelogram if its opposite angles are equal.

Given: In quadrilateral ABCD, $\angle A = \angle C$ and $\angle B = \angle D$

43. Prove: _____

Statements

Reasons

Quadrilateral ABCD with $\angle A = \angle C$ and $\angle B = \angle D$

Given

44. $\angle A + \angle B + \angle C + \angle D = 360^\circ$ _____

45. _____ Substitution & Simplification

46. _____ Division

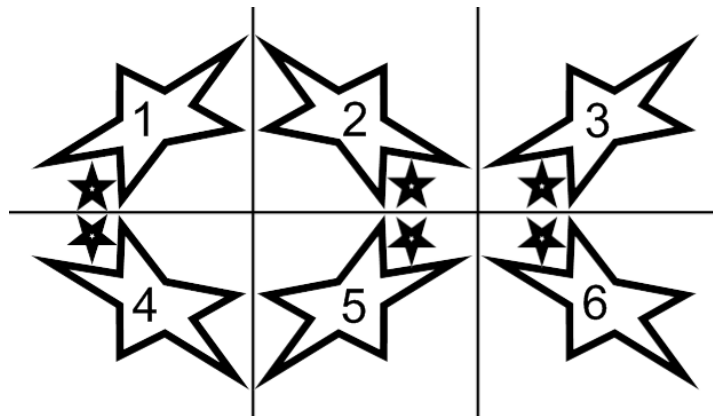
47. _____ Substitution with given information and previous statement.

48. $\angle A$ and $\angle B$ are supplementary
 $\angle A$ and $\angle D$ are supplementary _____

49. $AD \parallel BC$ and $AB \parallel DC$ _____

50. ABCD is a parallelogram _____

Part IV - State the type of transformation that takes the following objects to their images. Choose your answer from the following: **translation, reflection, rotation, dilation, glide reflection.**



51. What type of transformation takes object 1 to object 2? _____

52. What type of transformation takes object 1 to object 3? _____

53. What type of transformation takes object 1 to object 4? _____

54. What type of transformation takes object 1 to object 5? _____

55. What type of transformation takes object 1 to object 6? _____