**Everything you’re supposed to remember about proofs... but probably forgot...**

1. Do not list all your “givens” in one statement... separate them, and use them one by one.

2. Brackets at the end of the “reason” that tell me what step allowed you to make the current statement.

3. Every proof must have a diagram accompanying it. Copy the diagram along with the proof.

4. Figures are never drawn to scale. Do not assume parallel lines, right angles, or relative size.

5. Pieces are congruent, measures are equal… so $∡A≅∡B$, but $m∡A=m∡B$, or $\overbar{AB}≅\overbar{CD},$ but AB = CD.

There are 5 ways to prove triangles congruent: SSS, ASA, AAS, SAS, HL. DO NOT USE SSA!

CPCTC – Corresponding Parts of Congruent Triangles are Congruent. This is used to show two parts after the triangles are proven congruent and the congruence statement must be bracketed.

***Some theorems, properties and stuff you need to know:***

|  |  |
| --- | --- |
| Definition of perpendicular | Creates right angles |
| Definition of right angle | Angle is 90 degrees |
| Right angle theorem | Two right angles are congruent (you must show angles are right first) |
| Definition of bisector (segment) | defines the midpoint of a segment |
| Definition of midpoint | Creates two congruent segments |
| Definition of perp bisector | Defines the midpoint as well as two right angles |
| Segment Addition | Shows that 2 smaller segments add to a larger segment |
| Angle Addition | Shows that 2 smaller, adjacent angles add to a larger angle |
| Addition property | Used to add the same segment or angle (or equal segments) to both sides of an equation |
| Subtraction property | Used to subtract from both sides of an equation |
| Definition of angle bisector | Creates two congruent angles |
| Reflexive property | Shows an angle or segment is equal to itself; must be shown before you add or subtract. Can be used to show triangles congruent. |
| Definition of isosceles | Two sides of a triangle are congruent |
| Isosceles Triangle Theorem | The two angles opposite the congruent sides are congruent |
| Vertical Angle Theorem | Vertical angles are congruent. |

If you have parallel lines, you can show alternate interior angles or corresponding angles congruent (you write: $if lines ∥\rightarrow alt int ∡ ≅ )$

If you have alternate interior angles or corresponding angles congruent, you can show parallel lines (you write: $if alt int ∡ ≅ \rightarrow $ $lines ∥)$

***Ways to show something is a parallelogram:***

1. by definition – showing both sets of sides are parallel

2. by showing one set of sides parallel and congruent

3. by showing both sets of opposite sides are congruent

4. by showing both sets of opposite angles congruent

5. by showing that the diagonals bisect each other

***To show a quadrilateral is a rectangle:***

1. show it’s a parallelogram and show 4 right angles