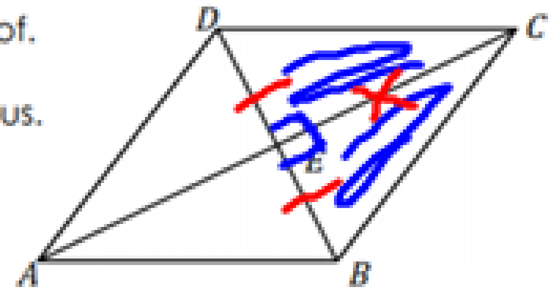
5. Complete following proof.

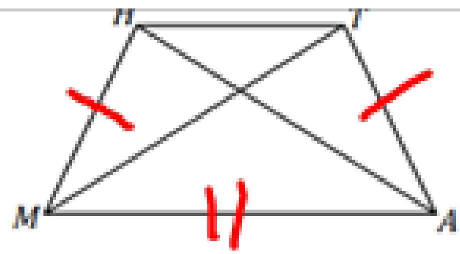
Given: $ABCD$ is a rhombus.

Prove: $\overline{AC}$ bisects $\angle DCB$ of the rhombus.



Statements	Reasons
1. $ABCD$ is a rhombus.	1. Given
2. $\overline{AC} \perp \overline{DB}$	2. ~~Diagonals of~~ a rhombus are perpendicular
3. $\angle DEC$ & $\angle BEC$ are Rt $\angle$'s	3. Definition of perpendicular lines
4. $\angle DEC \cong \angle BEC$	4. All Rt $\angle$'s are $\cong$
5. $\overline{DE} \cong \overline{BE}$	5. //gram diag bisect ea. oth
6. $\overline{EC} \cong \overline{EC}$	6. Reflexive Property
7. $\Delta DEC \cong \Delta BEC$	7. SAS
8. $\angle DCE \cong \angle BCE$	8. CPCTC
9. $\overline{AC}$ bisects $\angle DCB$ of the rhombus.	9. Definition of an angle bisector

1. Complete the following proof.



Given: $MATH$ is an isosceles trapezoid.

Prove: $\angle MHA \cong \angle ATM$

Complete the paragraph proof using the bank of terms below.

It is given that $MATH$ is an isosceles trapezoid. We can prove that $\overline{MH} \cong \overline{AT}$ $\boxed{\text{Def of Is. Trap}}$. Then, $\overline{MA} \cong \overline{MA}$ by the $\boxed{\text{Reflexive}}$. We can state that $\overline{AH} \cong \overline{MT}$ by using the $\boxed{\text{Trap. Diag theorem}}$. Now, we have triangles $\Delta HMA \cong \Delta TAM$ by $\boxed{\text{SSS}}$. Finally, by using $\boxed{\text{CPCTC}}$, we can prove that $\angle MHA \cong \angle ATM$.

~~Reflexive Property~~	Midsegment Theorem for Trapezoids
Trapezoid Base Angles Theorem	~~Definition of Isosceles Trapezoid~~
ASA	~~SSS~~
~~Trapezoid Diagonals Theorem~~	Transitive Property
Alternate Interior Angles	~~CPCTC~~

Let's discuss writing proofs using Coordinate Geometry.

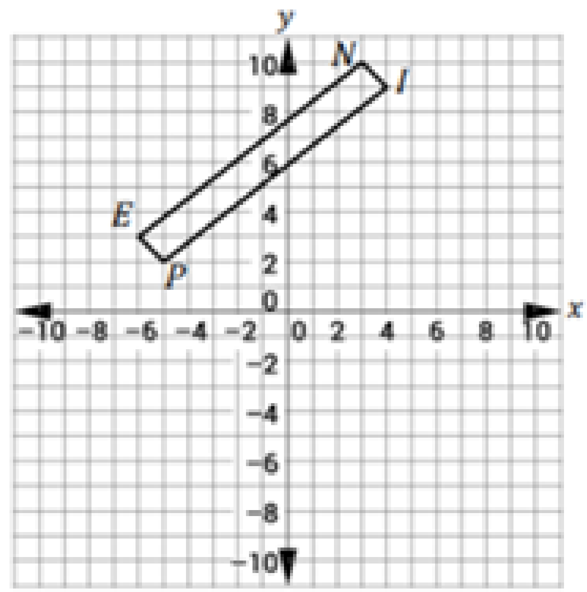
- Coordinate geometry involves placing geometric figures in a Coordinate Plane.

- Coordinate geometry proofs use several kinds of formulas.

Distance Formula	Slope Formula	Midpoint Formula
$d=\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$ Lengths	// or ⊥ $m=\frac{y_2-y_1}{x_2-x_1}$	$M=\left(\frac{x_2+x_1}{2},\frac{y_2+y_1}{2}\right)$ bisect diag.

Consider the information and figure below.

Given:
$PINE$ is a quadrilateral with vertices at $P(-5,2), I(4,9)$, $N(3,10)$, and $E(-6,3)$.



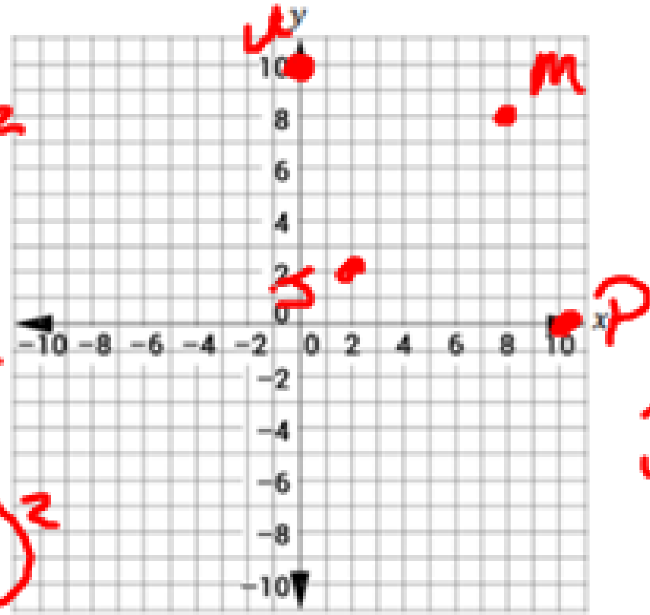
Prove:
$PINE$ is a parallelogram.

Write a paragraph proof based on the above information and diagram.

$\overline{EP}$ has a slope of -1 & $\overline{NI}$ has a slope of -1. So $\overline{EP} \parallel \overline{NI}$. $\overline{EN}$ has a slope of $\frac{7}{9}$ & $\overline{PI}$ has slope of $\frac{7}{9}$. So $\overline{EN} \parallel \overline{PI}$. Therefore $PINE$ is a $\parallel$gram by Def.

Consider the information below.

Given: $J(2,2), U(0,10), M(8,8), P(10,0)$.
Prove: $JUMP$ is a rhombus



$JU = \sqrt{(2-0)^2+(2-10)^2}$
$= \sqrt{2^2+(-8)^2}$
$= \sqrt{4+64} = \sqrt{68}$

$UM = \sqrt{(0-8)^2+(10-8)^2}$
$= \sqrt{(-8)^2+(2)^2}$
$= \sqrt{64+4} = \sqrt{68}$

$MP = \sqrt{(8-10)^2+(8-0)^2}$
$= \sqrt{(-2)^2+8^2}$
$= \sqrt{4+64} = \sqrt{68}$

$JP = \sqrt{(2-10)^2+(2-0)^2}$
$= \sqrt{(-8)^2+2^2}$
$= \sqrt{64+4} = \sqrt{68}$

$\overline{JU} \cong \overline{UM} \cong \overline{MP} \cong \overline{JP}$
by Def JUMP is a rhombus

Quadrilateral $GRIT$ has coordinates $G(10, 8)$, $R(10, 20)$, $I(18, 20)$, and $T(18, 8)$.

Part A: Circle the correct answer that completes the statement below.

$GRIT$ is a rectangle | rhombus | isosceles trapezoid.

Part B: Which of the following statements is enough to justify your answer?

Ⓐ $GRIT$ has four right angles and two pairs of congruent sides.

Ⓑ $GRIT$ has opposite angles that are congruent but not right angles.

Ⓒ $GRIT$ has diagonals that intersect at $90°$.

Ⓓ $GRIT$ has one pair of parallel opposite sides and one pair of non-parallel but congruent sides.