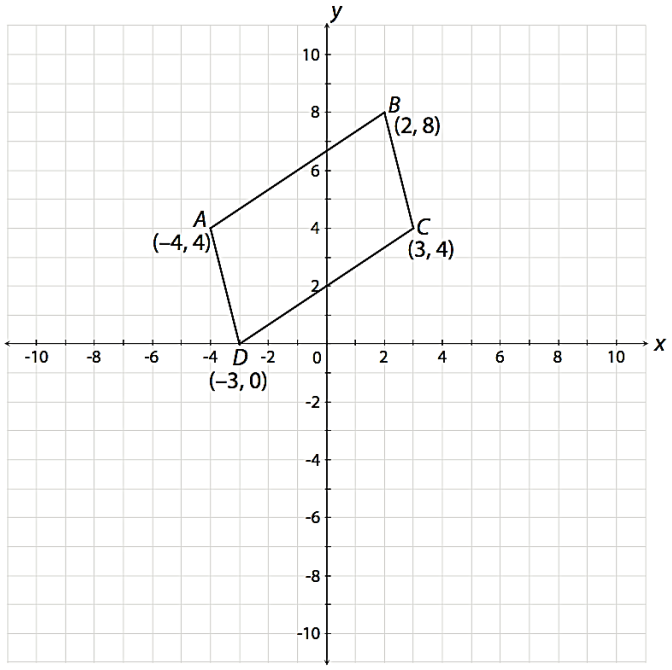
Properties of Quadrilaterals [A] Name: _____ Block: ___

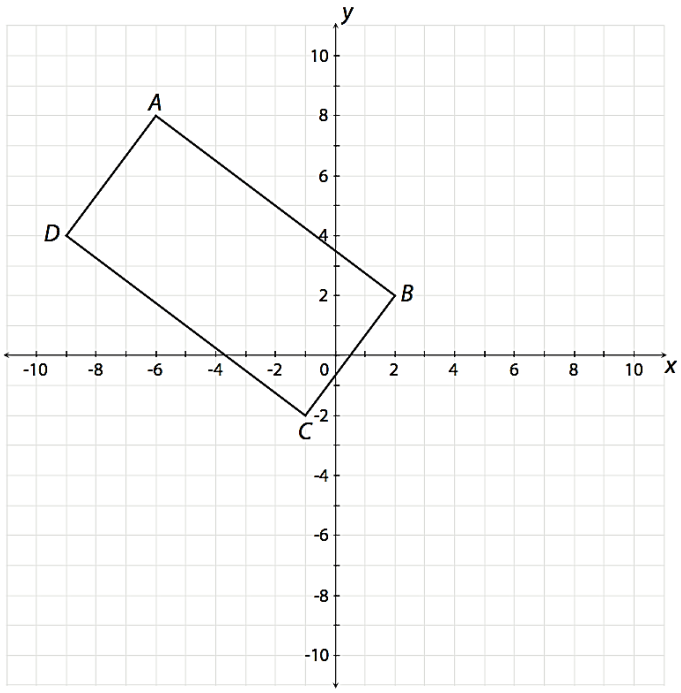
Justify whether the statement applies to the shape using slope, midpoint, and the distance formula.

Parallelogram A*BCD* has the following vertices: *A* (–4, 4), *B* (2, 8), *C* (3, 4), and *D* (–3, 0).



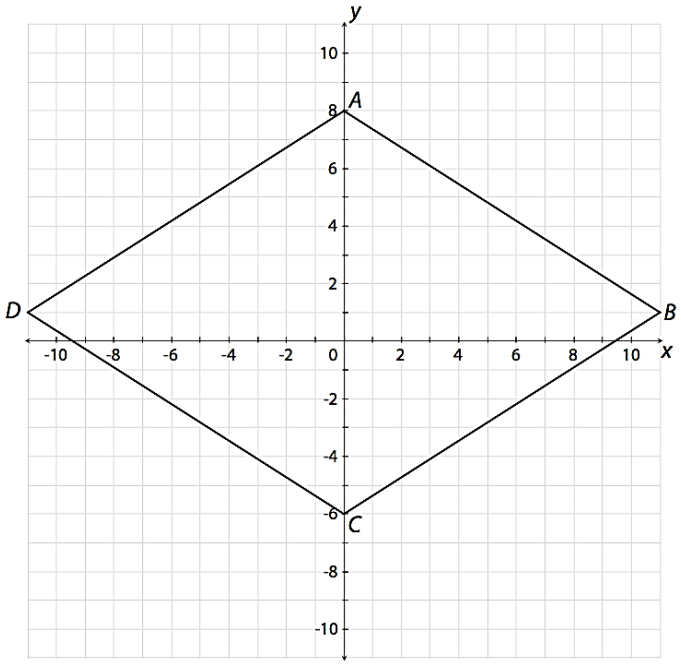
Opposite Sides Parallel Prove by showing the opposite sides have the same slopes.	
Opposite sides congrunet Prove by find the length of the opposite sides using $a^2 + b^2 = c^2$	
Daigonals bisect each other Prove by finding the midpoint of each diagonal. $midpoint = \left(\frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2}\right)$	
Four right angles Prove by finding the slopes of adjacent sides are opposite reciprocals.	
Congruent diagonals Prove by find the length of the diagonals using $a^2 + b^2 = c^2$	
Four congruent sides Prove by find the length of each side using $a^2 + b^2 = c^2$	
Diagonals are perpedicular Prove by finding the slopes of the diagonals and showing they are opposite reciprocals.	

Rectangle *ABCD* has vertices *A* (–6, 8), *B* (2, 2), *C* (–1, –2), and *D* (–9, 4).



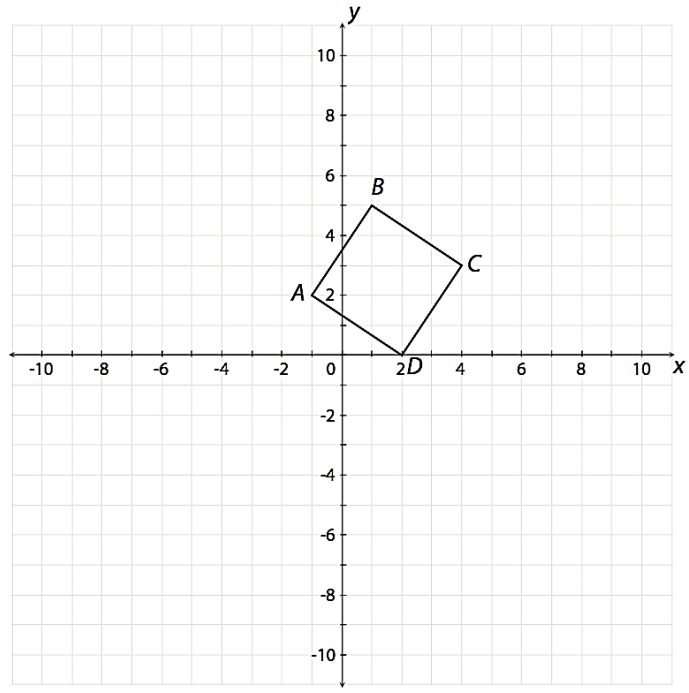
Opposite Sides Parallel Prove by showing the opposite sides have the same slopes.	
Opposite sides congrunet Prove by find the length of the opposite sides using $a^2 + b^2 = c^2$	
Daigonals bisect each other Prove by finding the midpoint of each diagonal. $midpoint = \left(\frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2}\right)$	
Four right angles Prove by finding the slopes of adjacent sides are opposite reciprocals.	
Congruent diagonals Prove by find the length of the diagonals using $a^2 + b^2 = c^2$	
Four congruent sides Prove by find the length of each side using $a^2 + b^2 = c^2$	
Diagonals are perpedicular Prove by finding the slopes of the diagonals and showing they are opposite reciprocals.	

Rhombus *ABCD* has vertices *A* (0, 8), *B* (11, 1), *C* (0, –6), and *D* (–11, 1).



Opposite Sides Parallel Prove by showing the opposite sides have the same slopes.	
Opposite sides congrunet Prove by find the length of the opposite sides using $a^2 + b^2 = c^2$	
Daigonals bisect each other Prove by finding the midpoint of each diagonal. $midpoint = \left(\frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2}\right)$	
Four right angles Prove by finding the slopes of adjacent sides are opposite reciprocals.	
Congruent diagonals Prove by find the length of the diagonals using $a^2 + b^2 = c^2$	
Four congruent sides Prove by find the length of each side using $a^2 + b^2 = c^2$	
Diagonals are perpedicular Prove by finding the slopes of the diagonals and showing they are opposite reciprocals.	

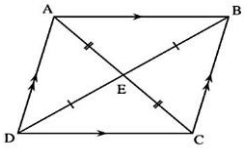
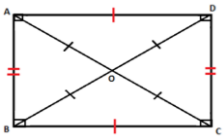
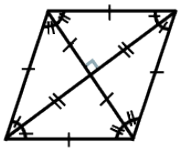
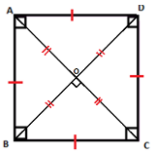
Square *ABCD* has vertices *A* (–1, 2), *B* (1, 5), *C* (4, 3), and *D* (2, 0).



Opposite Sides Parallel Prove by showing the opposite sides have the same slopes.	
Opposite sides congrunet Prove by find the length of the opposite sides using $a^2 + b^2 = c^2$	
Daigonals bisect each other Prove by finding the midpoint of each diagonal. $midpoint = \left(\frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2}\right)$	
Four right angles Prove by finding the slopes of adjacent sides are opposite reciprocals.	
Congruent diagonals Prove by find the length of the diagonals using $a^2 + b^2 = c^2$	
Four congruent sides Prove by find the length of each side using $a^2 + b^2 = c^2$	
Diagonals are perpedicular Prove by finding the slopes of the diagonals and showing they are opposite reciprocals.	

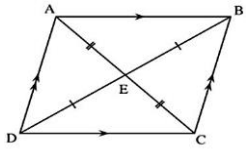
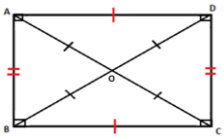
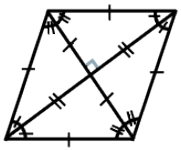
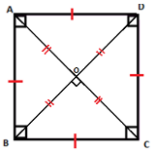
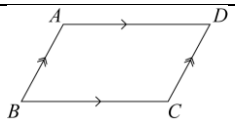
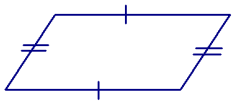
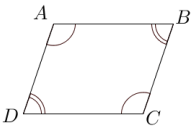
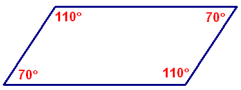
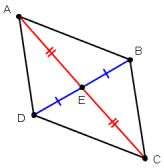
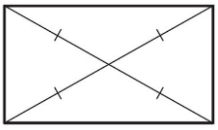
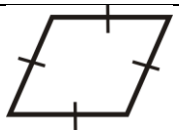
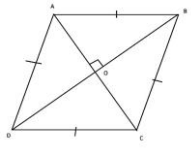
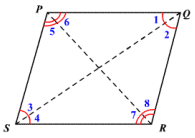
Properties of Quadrilaterals [B] Name: _____ Block: ___

Determine if each colume is true. Place an x in the boxes where the statement applies to the quadrilateral indicated.

	Parallelogram 	**Rectangle** 	**Rhombus** 	**Square** 
Opposite Sides Parallel Prove by showing the opposite sides have the same slopes.				
Opposite sides congrunet Prove by find the length of the opposite sides using $a^2 + b^2 = c^2$				
Opposite angles are congruent				
Consecutive angles supplementary				
Daigonals bisect each other Prove by finding the midpoint of each diagonal.				
Four right angles Prove by finding the slopes of adjacent sides are opposite reciprocals.				
Congruent diagonals Prove by find the length of the diagonals using $a^2 + b^2 = c^2$				
Four congruent sides Prove by find the length of each side using $a^2 + b^2 = c^2$				
Diagonals are perpedicular Prove by finding the slopes of the diagonals and showing they are opposite reciprocals.				
Diagonals bisect angles				

Properties of Quadrilaterals [C] Name: _____ Block: ___

Determine the properties of a square. If the characteristic applies to a square, place an x in the box.

	Parallelogram	**Rectangle**	**Rhombus**	**Square**
				
Opposite Sides Parallel Prove by showing the opposite sides have the same slopes.		x	x	
Opposite sides congrunet Prove by find the length of the opposite sides using $a^2 + b^2 = c^2$		x	x	
Opposite angles are congruent		x	x	
Consecutive angles supplementary		x	x	
Daigonals bisect each other Prove by finding the midpoint of each diagonal.		x	x	
Four right angles Prove by finding the slopes of adjacent sides are opposite reciprocals.				
Congruent diagonals Prove by find the length of the diagonals using $a^2 + b^2 = c^2$				
Four congruent sides Prove by find the length of each side using $a^2 + b^2 = c^2$				
Diagonals are perpedicular Prove by finding the slopes of the diagonals and showing they are opposite reciprocals.				
Diagonals bisect angles				

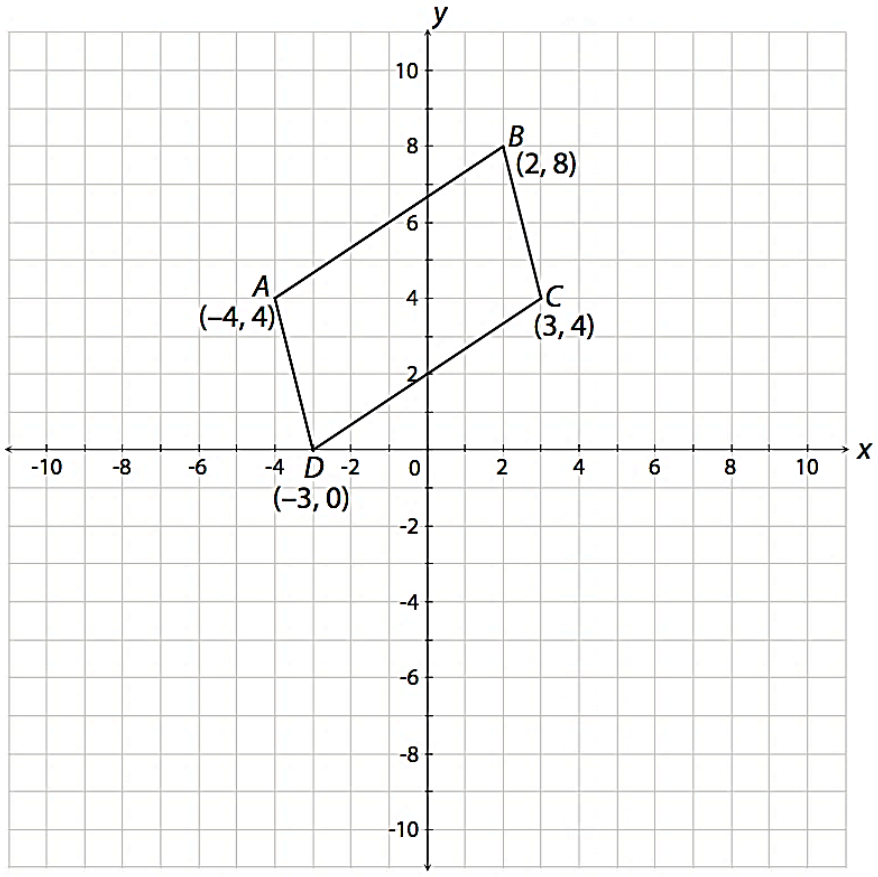
Properties of Quadrilaterals [Answer Key]

	Parallelogram	**Rectangle**	**Rhombus**	**Square**
Opposite Sides Parallel	Yes, the opposite sides have the same slopes	Yes, the opposite sides have the same slopes	Yes, the opposite sides have the same slopes	Yes, the opposite sides have the same slopes
Opposite sides congrunet	Yes, the oppostie sides have the same lengths	Yes, the opposite sides have the same lengths	Yes, the sides have the same length	Yes, the sides have the same length
Opposite angles are congruent	Yes	Yes	Yes	Yes
Consecutive angles supplementary	Yes	Yes	Yes	Yes
Daigonals bisect each other	Yes, the diagonals have the same midpoint	Yes, the diagonals have the same midpoint	Yes, the diagonals have the same midpoint	Yes, the diagonals have the same midpoint
Four right angles	Sometimes… when the prallelogram is a rectangle or square	Yes, the sides' slopes are opposite reciprocals	Sometimes… when the rhombus is a square	Yes, the sides' slopes are opposite reciprocals
Congruent diagonals	Sometimes… when the prallelogram is a rectangle or square	Yes, the diagonals have the same length	Sometimes… when the rhombus is a square	Yes, the diagonals have the same length
Four congruent sides	No	No	Yes, all the sides have the same length	Yes, all the sides have the same length
Diagonals are perpedicular	Sometimes… when the prallelogram is a square	Sometimes… when the rectangle is a square	Yes, the slopes of the diagonals are opposite reciprocals	Yes, the slopes of the diagonals are opposite reciprocals
Diagonals bisect angles	Sometimes… when the prallelogram is a square	Sometimes… when the rectangle is a square	Yes	Yes

Properties of Quadrilaterals [D] Name: _____ Block: ___

Justify whether the statement applies to the shape using slope, midpoint, and the distance formula.

Parallelogram A*BCD* has the following vertices: *A* (–4, 4), *B* (2, 8), *C* (3, 4), and *D* (–3, 0).



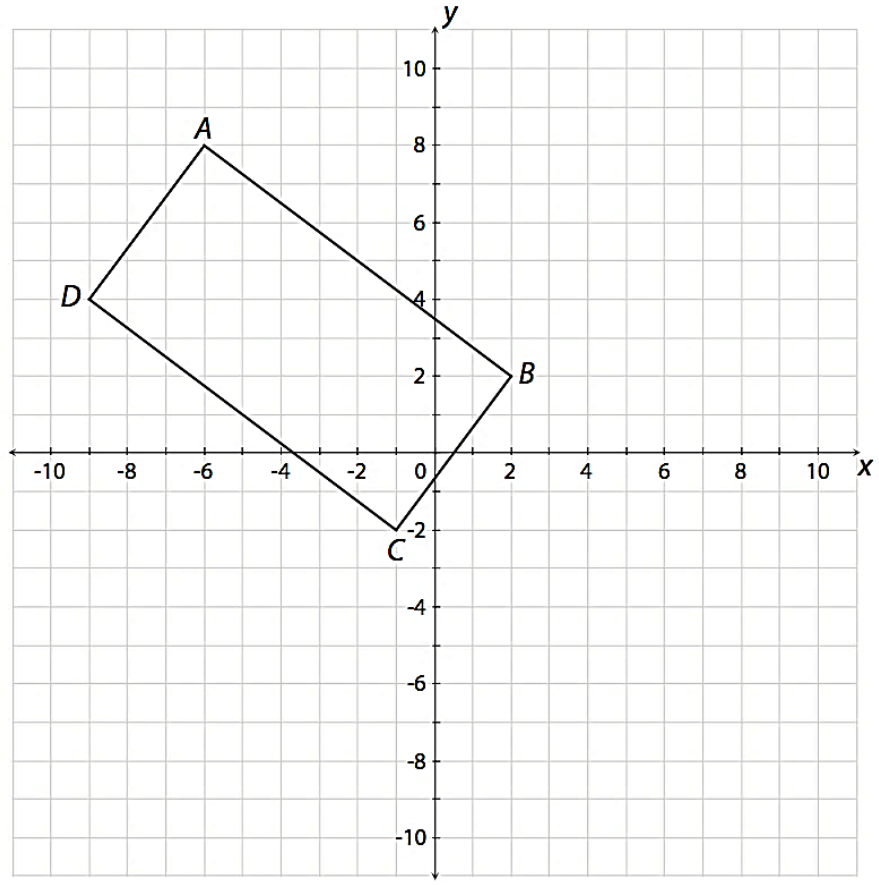
Opposite Sides Parallel
Prove by showing the opposite sides have the same slopes.

Opposite sides congrunet
Prove by find the length of the opposite sides using $a^2 + b^2 = c^2$

Diagonals are perpedicular
Prove by finding the slopes of the diagonals and showing they are opposite reciprocals.

Congruent diagonals
Prove by find the length of the diagonals using $a^2 + b^2 = c^2$

Rectangle *ABCD* has vertices *A* (–6, 8), *B* (2, 2), *C* (–1, –2), and *D* (–9, 4).



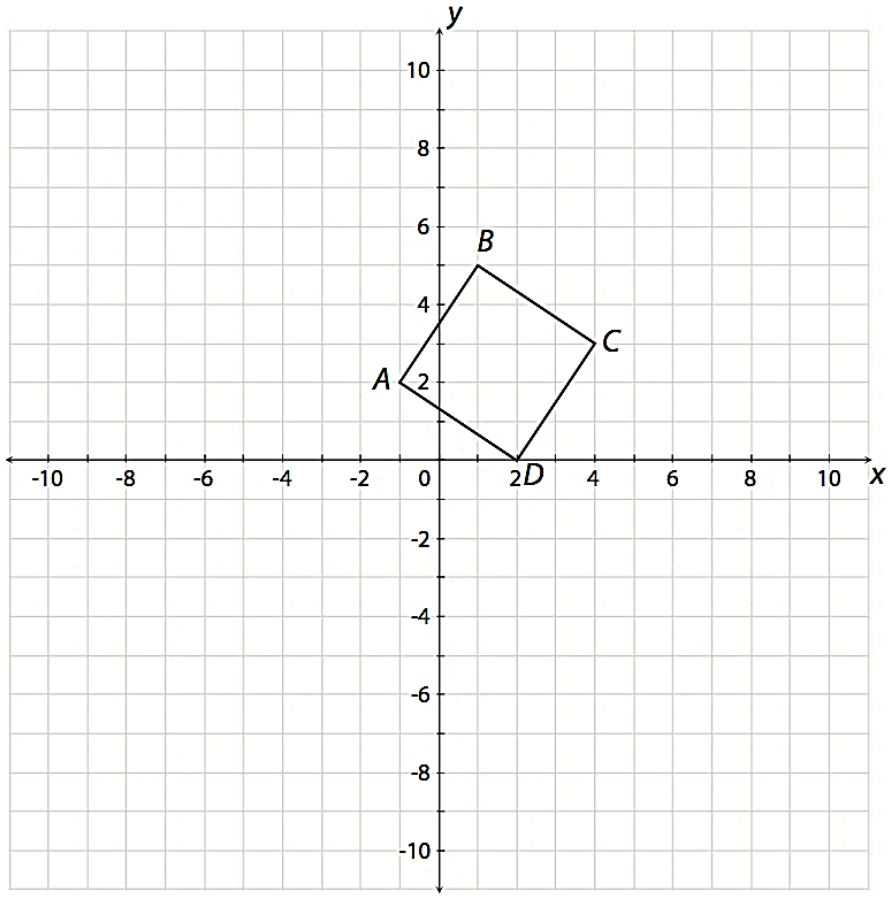
Opposite Sides Parallel
Prove by showing the opposite sides have the same slopes.

Four right angles
Prove by finding the slopes of adjacent sides are opposite reciprocals.

Opposite sides congrunet
Prove by find the length of the opposite sides using $a^2 + b^2 = c^2$

Daigonals bisect each other
Prove by find the length of the diagonals using $a^2 + b^2 = c^2$

Square *ABCD* has vertices *A* (–1, 2), *B* (1, 5), *C* (4, 3), and *D* (2, 0).



Opposite Sides Parallel
Prove by showing the opposite sides have the same slopes.

Four right angles
Prove by finding the slopes of adjacent sides are opposite reciprocals.

Four congruent sides
Prove by find the length of each side using $a^2 + b^2 = c^2$

Congruent diagonals
Prove by find the length of the diagonals using $a^2 + b^2 = c^2$