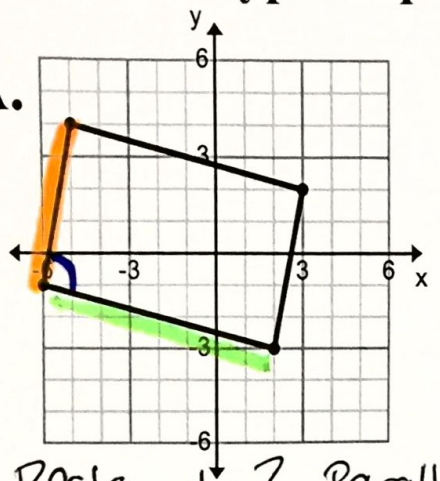
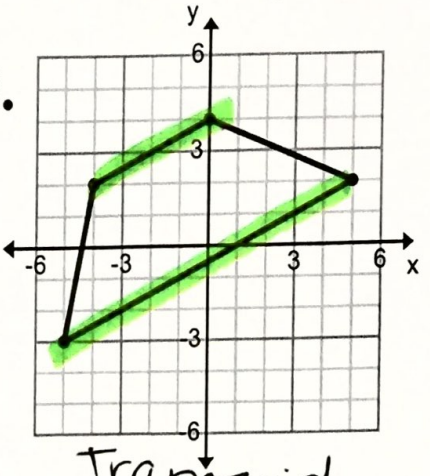
Predict the type of quadrilateral shown in each graph below.

A.



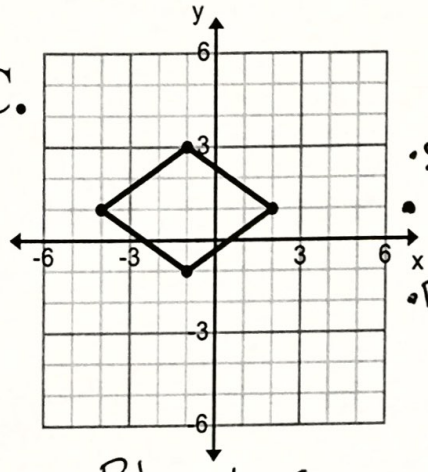
Rectangle? Parallelogram?

B.



Trapezoid

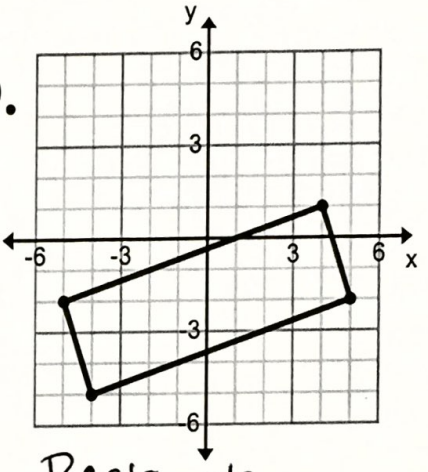
C.



- Sides ≅
- No ⊥
- Diag NOT ≅ are ⊥

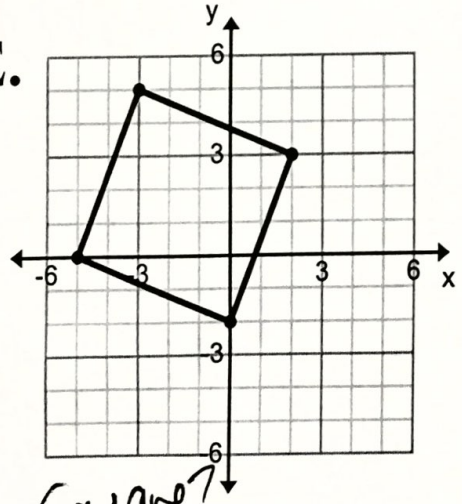
Rhombus

D.



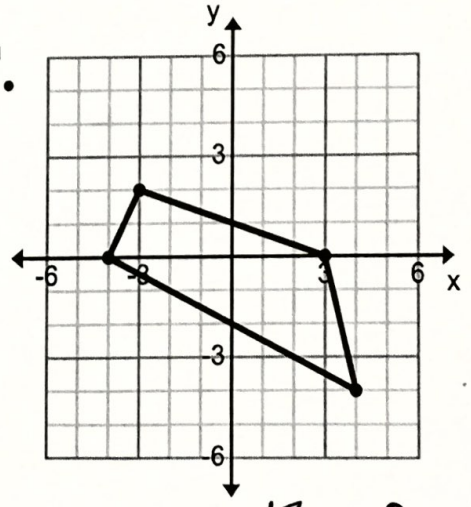
Rectangle

E.



Square?
Rhombus?

F.

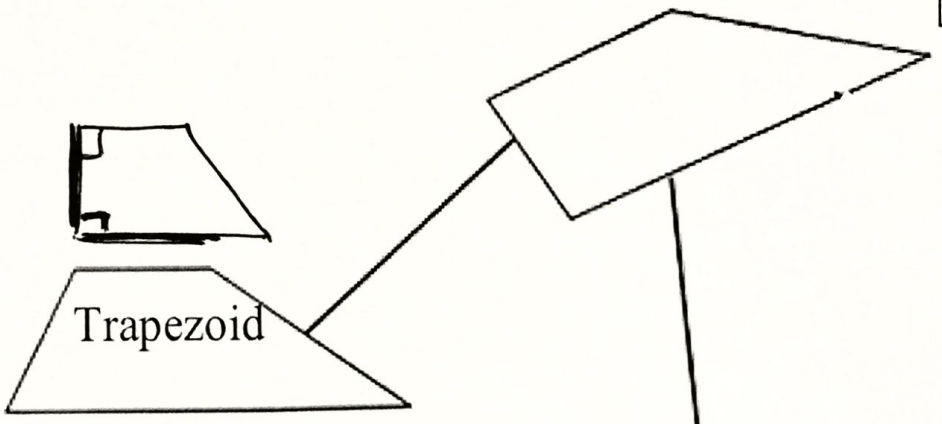


Trapezoid? Quadrilateral
Parallelogram?

Classification Chart

Diagonal: a line that connects opposite vertices

Quadrilateral
Shape with 4 sides

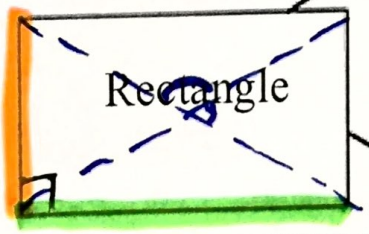


Trapezoid

- only 1 set of ∥ sides
- the 2 ∥ sides are NOT ≅
- could have some right angles.

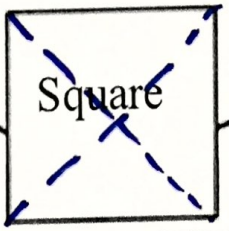
Parallelogram

- opposite sides are ∥
- opposite sides are ≅
- Diagonals are NOT ⊥ NOT ≅



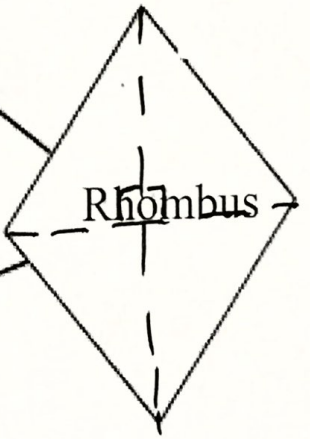
Rectangle

- same as Parallelogram
- adjacent sides are ⊥
- adjacent sides are NOT ≅
- Diagonals are ≅ NOT ⊥



Square

- all sides ≅
- adjacents sides are ⊥
- Diagonals are ≅ & are ⊥



Rhombus

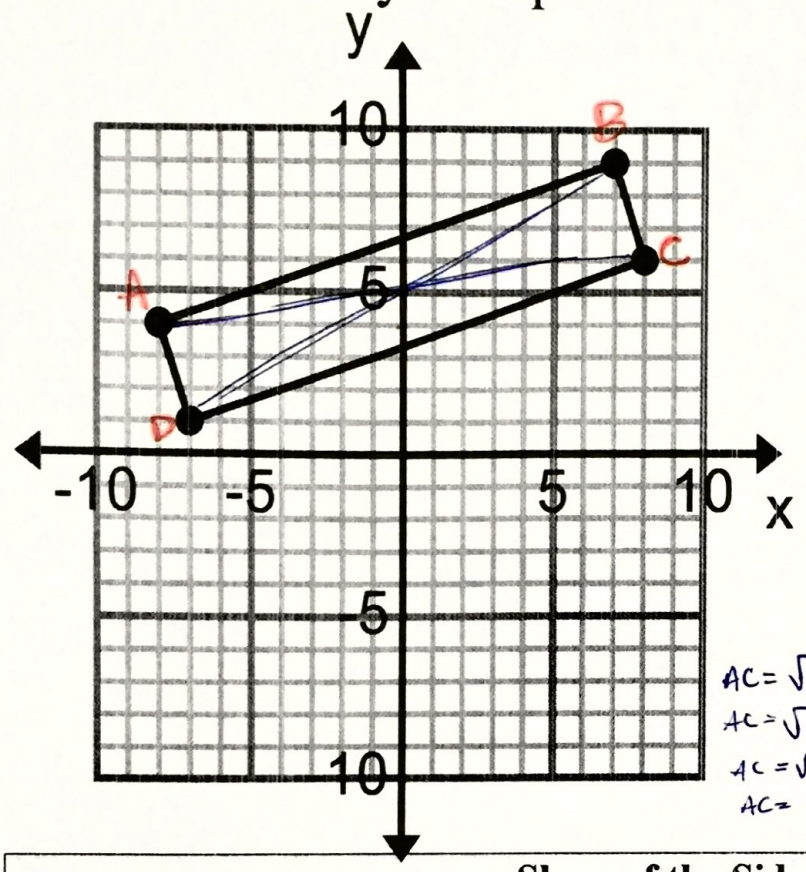
- same as Parallelogram
- all sides ≅
- adjacent sides NOT ⊥
- Diagonals are ⊥ NOT ≅

Go back to the 1st six graphs and list what you would have to show in order to prove your prediction is true.

Notes 5-5

Sec 1 | **Classify Quadrilaterals** | **Unit 5**

Ex. 1: Classify the quadrilateral.



$A(-8,4)$
$B(7,9)$
$C(8,6)$
$D(-7,1)$

$m_{AC} = \frac{4-6}{-8-8} = \frac{-2}{-16} = \frac{1}{8}$

$m_{BD} = \frac{9-1}{7--7} = \frac{8}{14} = \frac{4}{7}$

$1^2 + 3^2 =$
$1+9$
$10 = c^2$
$c =$

$5^2 + 15^2 = c^2$
$25 + 225 =$

$AC = \sqrt{(-8-8)^2 + (4-6)^2}$
$AC = \sqrt{(-16)^2 + (-2)^2}$
$AC = \sqrt{260}$
$AC =$

$BD = \sqrt{(7--7)^2 + (9-1)^2}$
$BD = \sqrt{14^2 + 8^2}$
$BD = \sqrt{196+64}$
$BD = \sqrt{260} = 16.12$

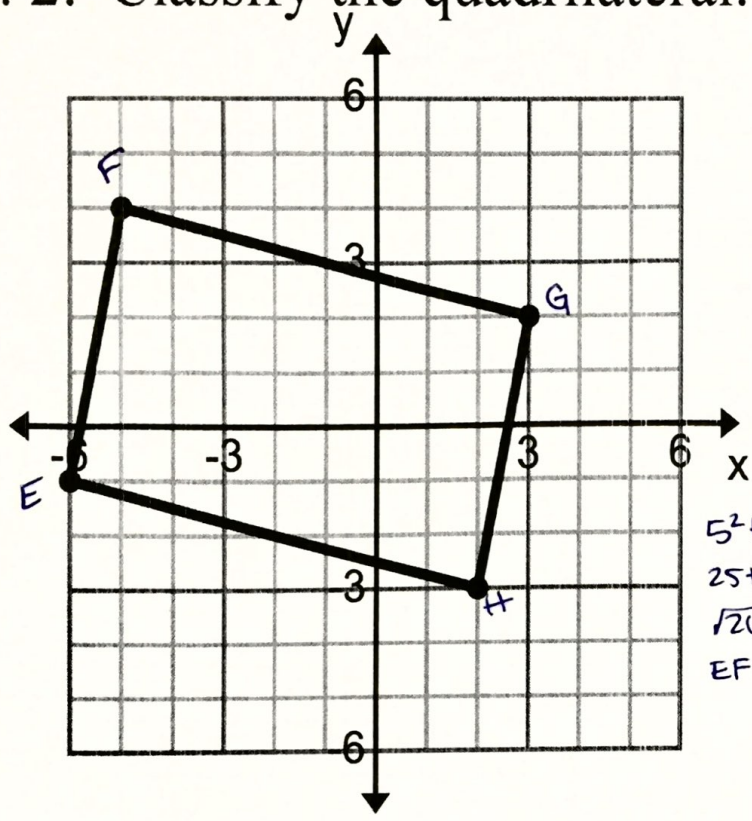
Slope of the Sides:			
$m_{AB} = \frac{5}{15} = \frac{1}{3}$	$m_{BC} = \frac{-3}{1}$	$m_{CD} = \frac{1}{3}$	$m_{AD} = \frac{-3}{1}$
Length of the Sides:			
$AB = 3.16$ units	$BC = 15.81$ units	$CD = 3.16$ units	$AD = 15.81$ units
Angle Measures:			
$\angle A = 90°$ because $\overline{AD} \perp \overline{AB}$	$\angle B = 90°$ because $\overline{AB} \perp \overline{BC}$	$\angle C = 90°$ because $\overline{BC} \perp \overline{CD}$	$\angle D = 90°$ because $\overline{AD} \perp \overline{CD}$
Diagonals:			
Length: $AC = 16.12$ units; $BD = 16.12$ units	Slope: $m_{AC} = \frac{1}{8}$ $m_{BD} = \frac{4}{7}$	Relationship: $\cong$ But NOT $\perp$	

Type of Quadrilateral Rectangle. Explain:

- 2 sets of $\parallel$ sides
- 2 sets of $\cong$ sides
- 4 right angles
- Diagonals are $\cong$ but NOT $\perp$

Ex. 2: Classify the quadrilateral.

$E(-6,-1)$
$F(-5,4)$
$G(3,2)$
$H(2,-3)$



$EG = \sqrt{(-9)^2 + (-3)^2}$
$\sqrt{81+9}$
$EG = \sqrt{90} = 9.49$
$FH = \sqrt{(-7)^2 + 7^2}$
$FH = \sqrt{49+49}$
$\sqrt{98} = 9.90$

$5^2 + 1^2 = EF^2$
$25+1 = EF^2$
$\sqrt{26} = \sqrt{EF^2}$
$EF =$

$2^2 + 8^2 = FG^2$
$4+64 = FG^2$
$\sqrt{68} = \sqrt{FG^2}$
$FG = 8.25$

Slope of the Sides:			
$m_{EF} = \frac{5}{1}$	$m_{FG} = -\frac{2}{8} = \left(\frac{-1}{4}\right)$	$m_{GH} = \frac{5}{1}$	$m_{EH} = \frac{-2}{8} = \left(\frac{-1}{4}\right)$
Length of the Sides:			
EF = 5.1 units	FG = 8.25 units	GH = 5.1 units	EH = 8.25 units
Angle Measures:			
$\angle E \neq 90°$ EF NOT ⊥ EH	$\angle F \neq 90°$ $\overline{EF}$ NOT ⊥ $\overline{FG}$	$\angle G \neq 90°$ $\overline{FG}$ NOT ⊥ $\overline{GH}$	$\angle H \neq 90°$ $\overline{EH}$ NOT ⊥ $\overline{HG}$

Diagonals:		
Length: EG = 9.49 units FH = 9.90 units	Slope: $m_{EG} = \frac{3}{9} = \left(\frac{1}{3}\right)$ $m_{FH} = (-1)$	Relationship: NOT ≅ and NOT ⊥

Type of Quadrilateral Parallelogram. Explain:
- opposite sides ||
- opposite sides ≅
- Diagonals NOT ≅ or ⊥