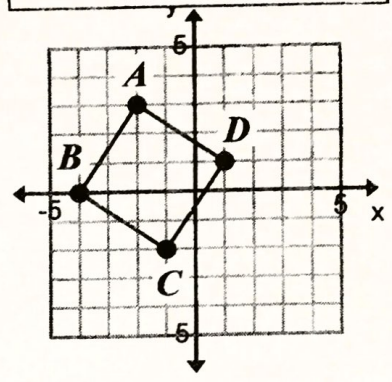


Name: _____ Period: _____

Score: _____ / _____ %

HW 5-5 HONORS: Properties of Quadrilaterals

1. Determine whether the quadrilateral is a square based on the properties of sides, angles, and diagonals in squares. (Make sure you use correct notation in the table.)



Slope of the Sides:			
$m_{\overline{AB}} = \frac{3}{2}$	$m_{\overline{AD}} = -\frac{2}{3}$	$m_{\overline{CD}} = \frac{3}{2}$	$m_{\overline{BC}} = -\frac{2}{3}$
Length of the Sides:			
$AB = \sqrt{13} \approx 3.61$	$AD = \sqrt{13} \approx 3.61$	$CD = \sqrt{13} \approx 3.61$	$BC = \sqrt{13} \approx 3.61$
Angle Measures:			
$\overline{AB} \perp \overline{AD}$ $m\angle A = 90^\circ$	$\overline{AD} \perp \overline{CD}$ $m\angle D = 90^\circ$	$\overline{CD} \perp \overline{BC}$ $m\angle C = 90^\circ$	$\overline{BC} \perp \overline{AB}$ $m\angle B = 90^\circ$
Diagonals:			
Length: $AC = \sqrt{26} \approx 5.10$ $BD = \sqrt{26} \approx 5.10$	Slope: $m_{\overline{AC}} = -\frac{5}{1}$ $m_{\overline{BD}} = \frac{1}{5}$	Relationship: $\overline{AC} \cong \overline{BD}$ $\overline{AC} \perp \overline{BD}$	

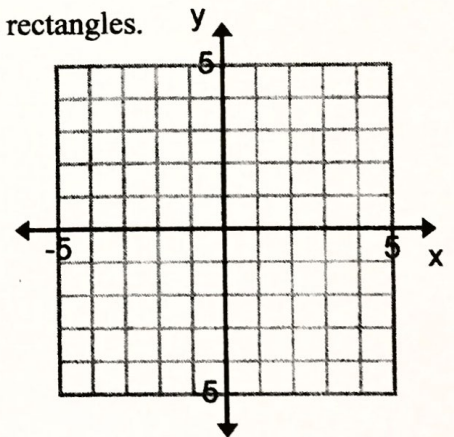
$$\begin{array}{l} \frac{AC}{5^2 + 1^2} \\ \frac{BD}{1^2 + 5^2} \\ \frac{\sqrt{26}}{25 + 1} \\ \frac{\sqrt{26}}{1 + 25} \end{array}$$

Is it a square? Yes Explain using a sentence and mathematical reasoning from the box above.
 all sides are \cong , $AB = AD = CD = BC = \sqrt{13}$ and all $\angle s = 90^\circ$.
 $\angle A = \angle B = \angle C = \angle D = 90^\circ$ (other explanation: the diagonals are \cong and \perp
 $AC = BD = \sqrt{26}$ & $\overline{AC} \perp \overline{BD}$)

2. Determine whether the quadrilateral $A(-4,1)$, $B(3,3)$, $C(4,-2)$,

$D(-3,-3)$ is a rectangle based on the properties of sides, angles and in rectangles.

Justify your reasoning.

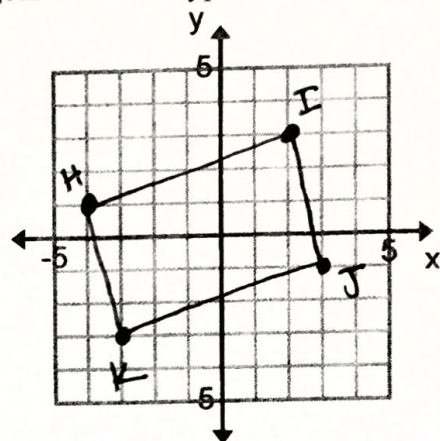


Slope of the Sides:			
Length of the Sides:			
Angle Measures:			
Diagonals:			
Length:	Slope:	Relationship:	

Is it a rectangle? _____ Explain using a sentence and mathematical reasoning from the box above.

3. Determine the specific type of quadrilateral described by the vertices $H(-4,1)$, $I(2,3)$, $J(3,-1)$, and $K(-3,-3)$. Base your answer on the properties of sides, angles, and diagonals in each type of quadrilateral. Justify your reasoning.

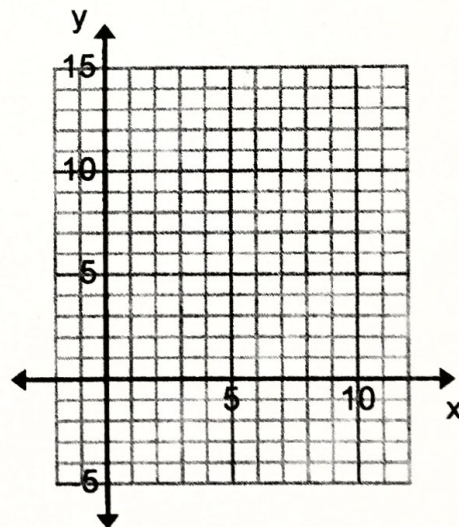
Slope of the Sides:			
$m_{HI} = \frac{1}{3}$	$m_{IJ} = -\frac{4}{1}$	$m_{JK} = \frac{1}{3}$	$m_{KH} = -\frac{4}{1}$
Length of the Sides:			
$HI = 2\sqrt{10} \approx 6.32$	$IJ = \sqrt{17} \approx 4.12$	$KJ = 2\sqrt{10} \approx 6.32$	$HK = \sqrt{17} \approx 4.12$
Angle Measures:			
\overline{HI} not \perp \overline{IJ} $m\angle I \neq 90^\circ$	\overline{IJ} not \perp \overline{JK} $m\angle J \neq 90^\circ$	\overline{JK} not \perp \overline{KH} $m\angle K \neq 90^\circ$	\overline{KH} not \perp \overline{HI} $m\angle H \neq 90^\circ$
Diagonals:			
Length: $HJ = \sqrt{53} \approx 7.28$ $IK = \sqrt{61} \approx 7.81$	Slope: $m_{HJ} = -\frac{2}{7}$ $m_{KI} = \frac{6}{5}$	Relationship: $\overline{HJ} \neq \overline{IK}$ \overline{HJ} not \perp \overline{IK}	



Type of quadrilateral: Parallelogram. Explain using a sentence and mathematical reasoning from the box.
 opposite sides are \parallel ; $\overline{HI} \parallel \overline{JK}$ and $\overline{IJ} \parallel \overline{HK}$; opposite sides are \cong ,
 $HI = KJ = 2\sqrt{10}$, $IJ = HK = \sqrt{17}$; and the $\angle \neq 90^\circ$

4. Determine the specific type of quadrilateral described by the vertices $R(-1,-5)$, $S(8,2)$, $J(11,13)$, and $K(2,6)$. Base your answer on the properties of sides, angles, and diagonals in each type of quadrilateral. Justify your reasoning.

Slope of the Sides:			
Length of the Sides:			
Angle Measures:			
Diagonals:			
Length:	Slope:	Relationship:	



Type of quadrilateral: _____ Explain using a sentence and mathematical reasoning from the box.