Use the distance formula to decide whether $\overline{PQ} \cong \overline{QR}$

P (-1, -6)
Q (-8, 5)
R (3, -2)

$PQ = \sqrt{(-1+8)^2+(-6-5)^2}$

$= \sqrt{49+121}$

$= \sqrt{170}$

$QR = \sqrt{(-8-3)^2+(5+2)^2}$

$= \sqrt{121+49}$

$= \sqrt{170}$

Yes $\overline{PQ} \cong \overline{QR}$

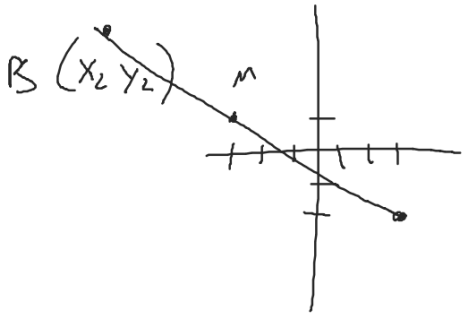
Find the midpoint between (-2, 3) and (4, 2).

$$\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$$

$$\left(\frac{-2+4}{2}, \frac{3+2}{2}\right) = \left(1, \frac{5}{2}\right)$$

Given the coordinates of one endpoint (A) and the midpoint (M) find the other endpoint. $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

A (3, -2) M (-3, 1)



$2\left(\frac{3+x_2}{2}\right) = (-3)2$

$3 + x_2 = -6$

$x_2 = -9$

$\frac{-2+y_2}{2} = 1$

$-2 + y_2 = 2$

$y_2 = 4$

$(-9, 4)$

State whether the lines are parallel, perpendicular, or neither.

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Line 1 passes through (-2, 2) and (5, 8)

$$m = \frac{8-2}{5+2} = \frac{6}{7}$$

Line 2 passes through (-8, 7) and (-2, 0)

$$m = \frac{0-7}{-2+8} = \frac{-7}{6}$$

$$l_1 \perp l_2$$

Line 1 passes through (-8, 3) and (-4, 5)

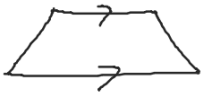
$$m = \frac{5-3}{-4+8} = \frac{2}{4} = \frac{1}{2}$$

Line 2 passes through (2, -4) and (8, -1)

$$m = \frac{-1+4}{8-2} = \frac{3}{6} = \frac{1}{2}$$

$$l_1 \parallel l_2$$

Fill in the blank with sometimes, always, or never.



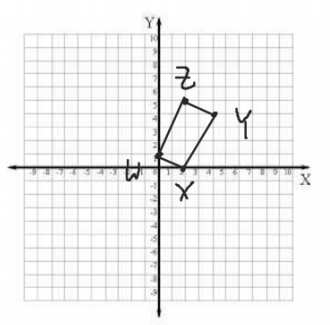
A trapezoid is Never a parallelogram.

The diagonals of a parallelogram are Sometimes congruent.

The consecutive sides of a rectangle are Sometimes congruent.

Classify each quadrilateral as a parallelogram, rectangle, rhombus, square, kite, trapezoid, or isosceles trapezoid. Show your work to justify your answer.

W (0,1), X (2, 0), Y (4, 4), Z (2, 5)



Slope

$WX = -\frac{1}{2}$

$XY = \frac{4}{2} = 2$

$YZ = -\frac{1}{2}$

$WZ = \frac{4}{2} = 2$

Distance

$WX = \sqrt{5}$

$XY = \sqrt{20}$

Distance

$WX = \sqrt{5}$

$XY = \sqrt{20}$

$YZ = \sqrt{5}$

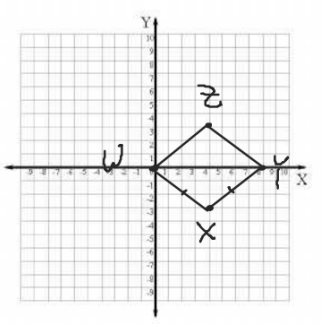
$WZ = \sqrt{20}$

$XZ = \sqrt{25} = 5$

$WY = \sqrt{25} = 5$

Classify each quadrilateral as a parallelogram, rectangle, rhombus, square, kite, trapezoid, or isosceles trapezoid. Show your work to justify your answer.

W (0,0), X (4, -3), Y (8, 0), Z (4, 3)



Slope

$WX = -\frac{3}{4}$

$XY = \frac{3}{4}$

$YZ = -\frac{3}{4}$

$WZ = \frac{3}{4}$

$WX = 5$

$XY = 5$

Distance

$WX = 5$

$YY = 5$

$YZ = 5$

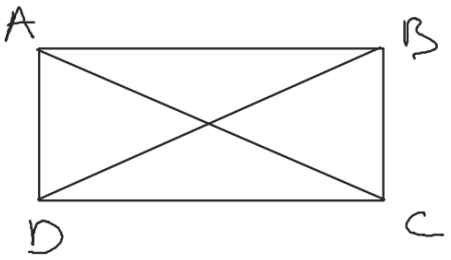
$WZ = 5$

$WY = \sqrt{64} = 8$

$XZ = \sqrt{36} = 6$

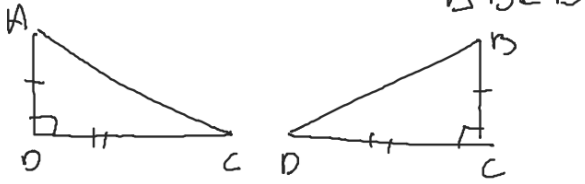
Given: ABCD is a rectangle
with diagonals $\overline{AC}$ and $\overline{BD}$

Prove: $\overline{AC} \cong \overline{BD}$



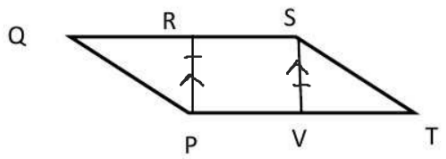
Statement	Reason
1) ABCD is a Rectangle	1) Given
2) $\overline{AD} \cong \overline{BC}$	2) Opposite sides of Rectangle $\cong$
3) $\overline{DC} \cong \overline{DC}$	3) Reflexive prop
4) $\triangle ADC \cong \triangle BCD$	4) SAS
5) $\overline{AC} \cong \overline{BD}$	5) CPCTC

Hint $\triangle ADC \cong \triangle BCD$



Given: $\Delta PQR \cong \Delta STV$
$\overline{PR} \parallel \overline{VS}$

Prove: PRSV is a parallelogram



Write the equation of a circle with the center at (1, -4) and a radius of 6.

$$(x-1)^2+(y+4)^2=6^2$$

$$(x-1)^2+(y+4)^2=36$$

Write the equation of a circle with the center at (2, 5) and point (4, -3) is on the circle.

$(2, 5)$

$h \quad k$

$r = \sqrt{68}$

$$(x-2)^2 + (y-5)^2 = 68$$

Graph the equation $(x-3)^2+(y+2)^2=25$.

$(3,-2)$ $r=5$