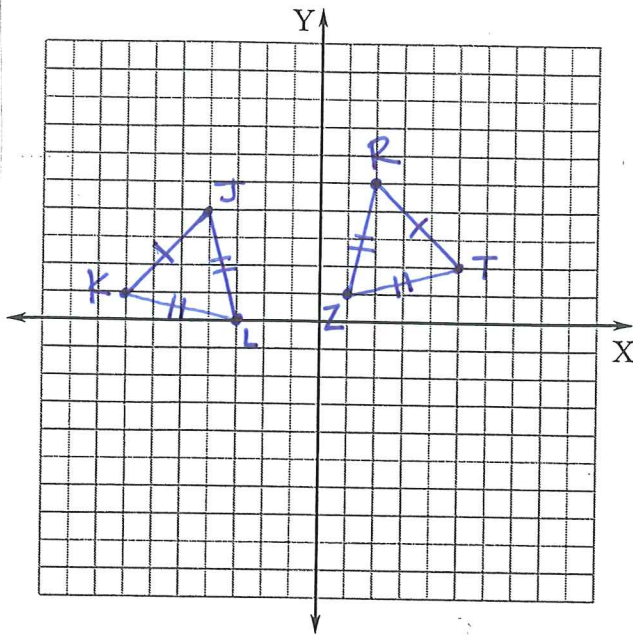


4-4 & 4-5 Verifying Triangle Congruence



ex: Determine whether $\triangle RTZ \cong \triangle JKL$ for $R(2,5)$, $Z(1,1)$, $T(5,2)$, $L(-3,0)$, $K(-7,1)$ and $J(-4,4)$.

Distance Formula:

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$\begin{matrix} R(2,5) & T(5,2) \\ x_1 & y_1 & x_2 & y_2 \end{matrix}$$

$$RT = \sqrt{(5-2)^2 + (2-5)^2}$$

$$RT = \sqrt{(3)^2 + (-3)^2}$$

$$RT = \sqrt{9+9} = \sqrt{18}$$

$$\begin{matrix} J(-4,4) & K(-7,1) \\ x_1 & y_1 & x_2 & y_2 \end{matrix}$$

$$JK = \sqrt{(-7+4)^2 + (1-4)^2}$$

$$JK = \sqrt{(-3)^2 + (-3)^2}$$

$$JK = \sqrt{9+9} = \sqrt{18}$$

$$\begin{matrix} R(2,5) & Z(1,1) \\ x_1 & y_1 & x_2 & y_2 \end{matrix}$$

$$RZ = \sqrt{(1-2)^2 + (1-5)^2}$$

$$RZ = \sqrt{(-1)^2 + (-4)^2}$$

$$RZ = \sqrt{1+16} = \sqrt{17}$$

$$\begin{matrix} J(-4,4) & L(-3,0) \\ x_1 & y_1 & x_2 & y_2 \end{matrix}$$

$$JL = \sqrt{(-3+4)^2 + (0-4)^2}$$

$$JL = \sqrt{(1)^2 + (-4)^2}$$

$$JL = \sqrt{1+16} = \sqrt{17}$$

$$\begin{matrix} T(5,2) & Z(1,1) \\ x_1 & y_1 & x_2 & y_2 \end{matrix}$$

$$TZ = \sqrt{(1-5)^2 + (1-2)^2}$$

$$TZ = \sqrt{(-4)^2 + (-1)^2}$$

$$TZ = \sqrt{16+1} = \sqrt{17}$$

$$\begin{matrix} K(-7,1) & L(-3,0) \\ x_1 & y_1 & x_2 & y_2 \end{matrix}$$

$$KL = \sqrt{(-3+7)^2 + (0-1)^2}$$

$$KL = \sqrt{(4)^2 + (-1)^2}$$

$$KL = \sqrt{16+1} = \sqrt{17}$$

$\triangle RTZ \cong \triangle JKL$ by SSS \cong Theorem.