

- 1) Quadrilateral BCEP has vertices B(-3,1), C(-3,-4), E(1,-1), and P(1,4).
Find the slopes of the diagonals. Show work using slope formula.

Find the midpoints of the diagonals.

From the above information, what type of quadrilateral is BCEP? Explain how you know.

- 2) Quadrilateral TURK has vertices T(1,5), U(9,9), R(11,5) and K(3,1).
Find the slopes of the sides of TURK. Show work using slope formula.

Based on the slopes of the sides, what type of quadrilateral is TURK? Explain how you know.

Find the lengths of \overline{TU} and \overline{UR} to decide if TURK is a square.

- 1) Quadrilateral BCEP has vertices B(-3,1), C(-3,-4), E(1,-1), and P(1,4).
Find the slopes of the diagonals. Show work using slope formula.

$$BE = \frac{-1-1}{1-(-3)} = \frac{-2}{4} = -\frac{1}{2} \quad CP = \frac{4-(-4)}{1-(-3)} = \frac{8}{4} = 2$$

Find the midpoints of the diagonals.

$$\left(\frac{-3+1}{2}, \frac{1+(-1)}{2} \right) = \left(-\frac{2}{2}, \frac{0}{2} \right) = (-1, 0) \quad \left(\frac{-3+1}{2}, \frac{-4+4}{2} \right) = (-1, 0)$$

From the above information, what type of quadrilateral is BCEP? Explain how you know.

midpoints same, so diagonals bisect each other. Slopes are neg. rec, so \perp .
 \perp & bisect each other must be a **RHOMBUS**

- 2) Quadrilateral TURK has vertices T(1,5), U(9,9), R(11,5) and K(3,1).
Find the slopes of the sides of TURK. Show work using slope formula.

$$TU = \frac{9-5}{9-1} = \frac{4}{8} = \frac{1}{2} \quad UR = \frac{9-5}{9-11} = \frac{4}{-2} = -2 \quad RK = \frac{5-1}{11-3} = \frac{4}{8} = \frac{1}{2} \quad KT = \frac{5-1}{1-3} = \frac{4}{-2} = -2$$

$\frac{1}{2}, -2, \frac{1}{2}, -2$

Based on the slopes of the sides, what type of quadrilateral is TURK? Explain how you know.

Opp sides have same slope, so \parallel .

Find the lengths of \overline{TU} and \overline{UR} to decide if TURK is a square.

consecutive sides have neg. rec. slopes so \perp , $\sqrt{(9-5)^2 + (9-1)^2} = \sqrt{16+64} = \sqrt{80}$ \neq $\sqrt{(9-5)^2 + (11-9)^2} = \sqrt{16+4} = \sqrt{20}$ not a square

