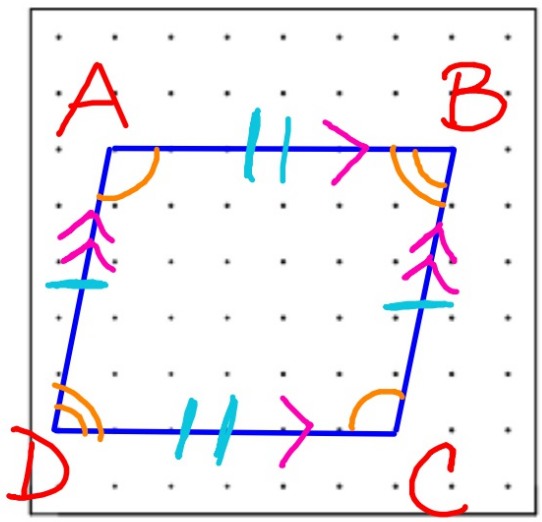
DIAGRAM

OF

PARALLELOGRAM



A parallelogram is a quadrilateral with opposite sides parallel. The opposite sides are congruent. The opposite angles are congruent.

DIAGONAL INVESTIGATION

#1

ARE THE DIAGONALS CONGRUENT?

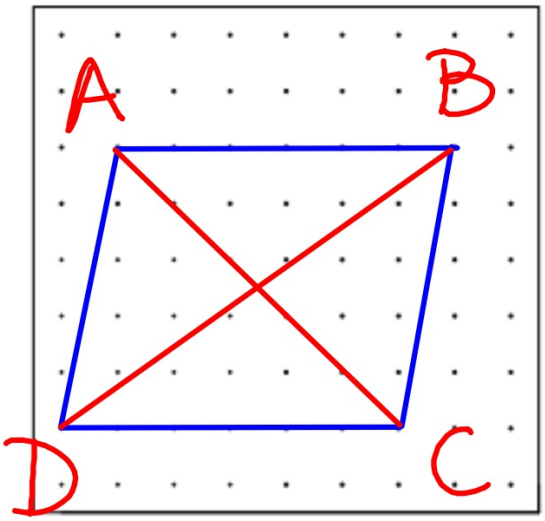
NO

cm

$m\overline{AC}$ = _____

$m\overline{BD}$ = _____

Since $\overline{AC}$ is not congruent to $\overline{BD}$, then the diagonals of parallelograms not congruent _____.

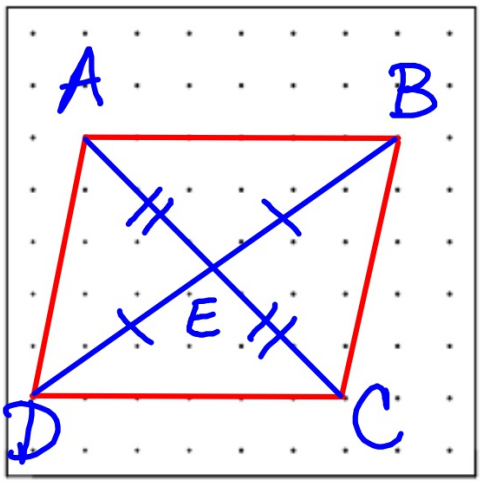


DIAGONAL INVESTIGATION

#2

DO THE DIAGONALS BISECT EACH OTHER?

Yes



$m\overline{DE}$ = _____

$m\overline{BE}$ = _____

Since $\overline{DE} \cong \overline{BE}$

then diagonal $\overline{DB}$ was bisected by $\overline{AC}$.

$m\overline{AE}$ = _____

$m\overline{CE}$ = _____

Since $\overline{AE} \cong \overline{CE}$

then diagonal $\overline{AC}$ was bisected by $\overline{DB}$.

DIAGONAL INVESTIGATION

#3

ARE THE DIAGONALS PERPENDICULAR? NO

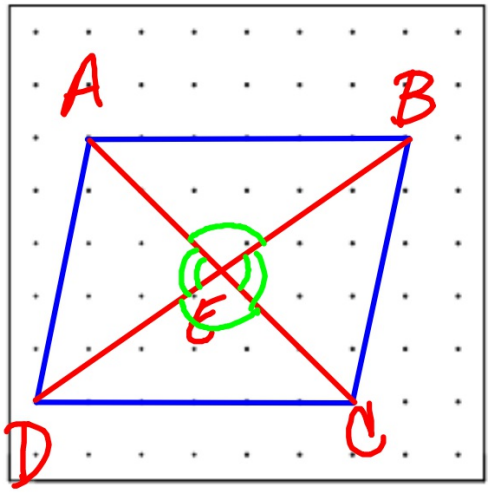
m∠DEC = 110°

m∠CEB = 70°

m∠BEA = 110°

m∠AED = 70°

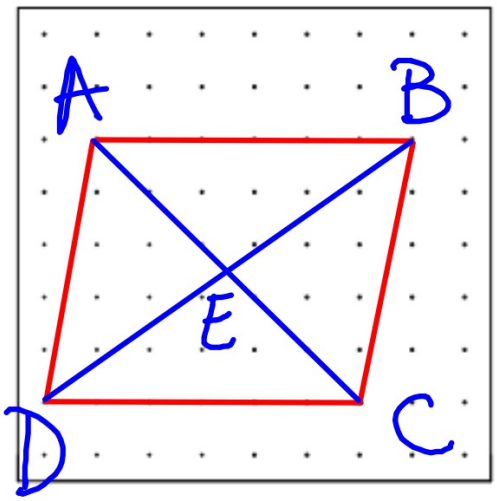
In order for the diagonals to be perpendicular, the angles formed at the intersection of the diagonals must be 90°. Since none of the angles are 90°, the diagonals are not perpendicular.



DIAGONAL INVESTIGATION

#4 NO

DO THE DIAGONALS BISECT VERTEX ANGLES?



m∠DAC = _____

m∠CAB = _____

Since ∠DAC not congruent to ∠CAB, then ∠DAB (which is a vertex angle) is not bisected.

m∠ABD = _____

m∠DBC = _____

Since ∠ABD not congruent to ∠DBC, then ∠ABC (which is a vertex angle) is not bisected.