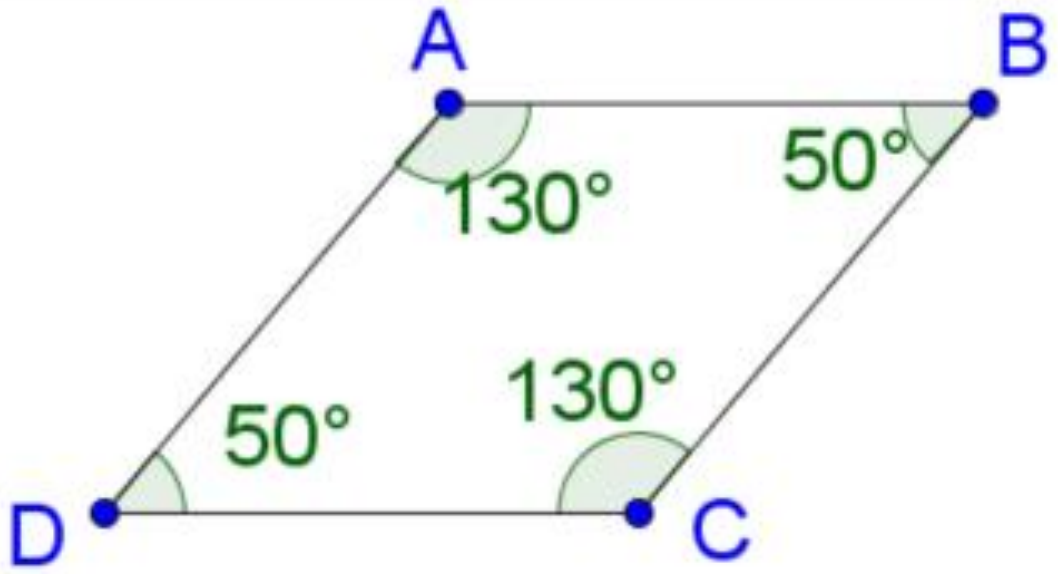
Math-2A

What you really have to know from Lesson 8-6

Properties of Parallelograms



Parallelogram Properties :

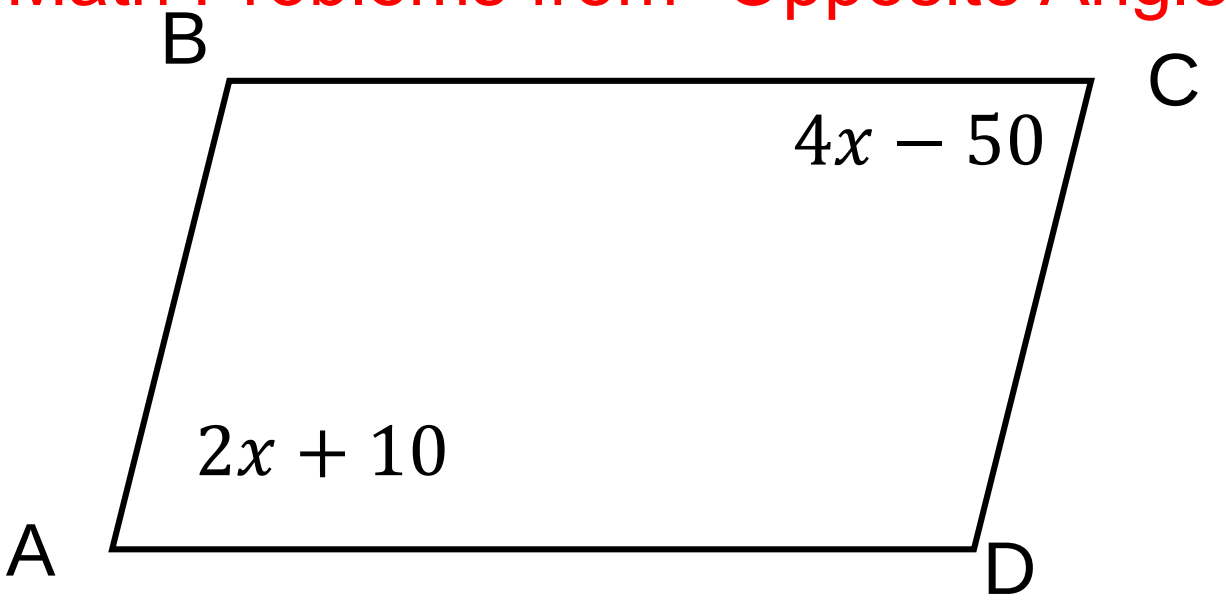
1. Opposite Angles are congruent.

$$m\angle A = m\angle C$$
$$m\angle B = m\angle D$$

2. Consecutive Interior Angles are supplementary.

$$m\angle A + m\angle B = 180$$

Math Problems from “Opposite Angles of Parallelograms are Congruent”



$m\angle A = ?$

$\text{m}\angle A = 2x + 10$

$\text{m}\angle A = 2(30) + 10$

$\text{m}\angle A = 70$

$x = ?$

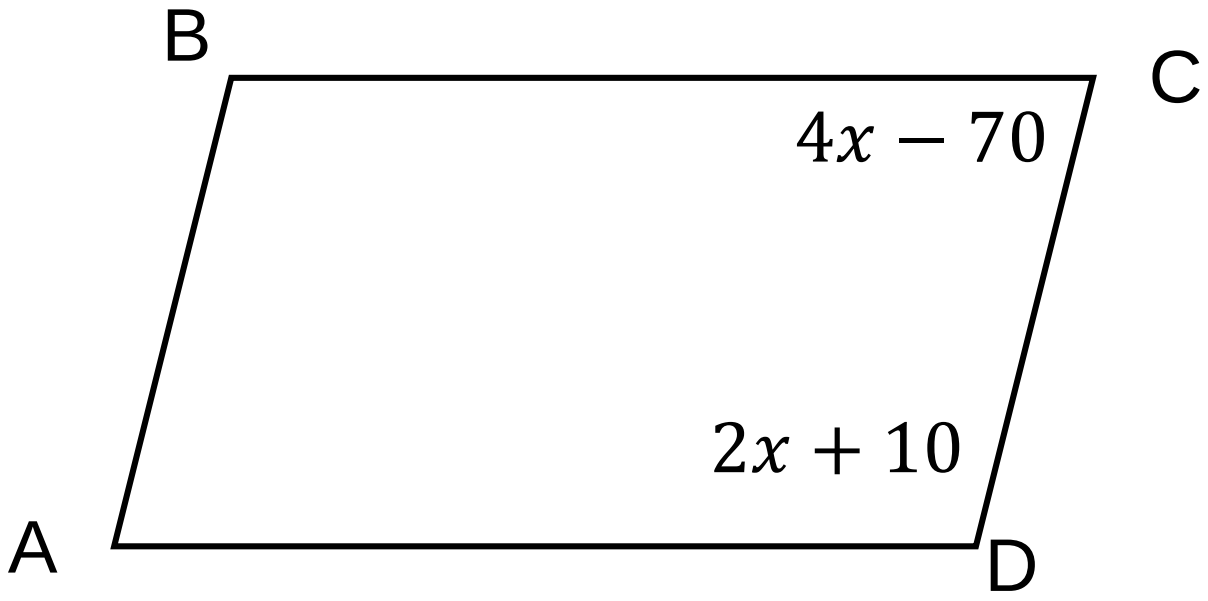
$\angle A \cong \angle C$

$\text{m}\angle A = m\angle C$

$2\text{x} + 10 = 4x - 50$

$x = 30$

Math Problems from “Adjacent Angles of Parallelograms are Supplementary”



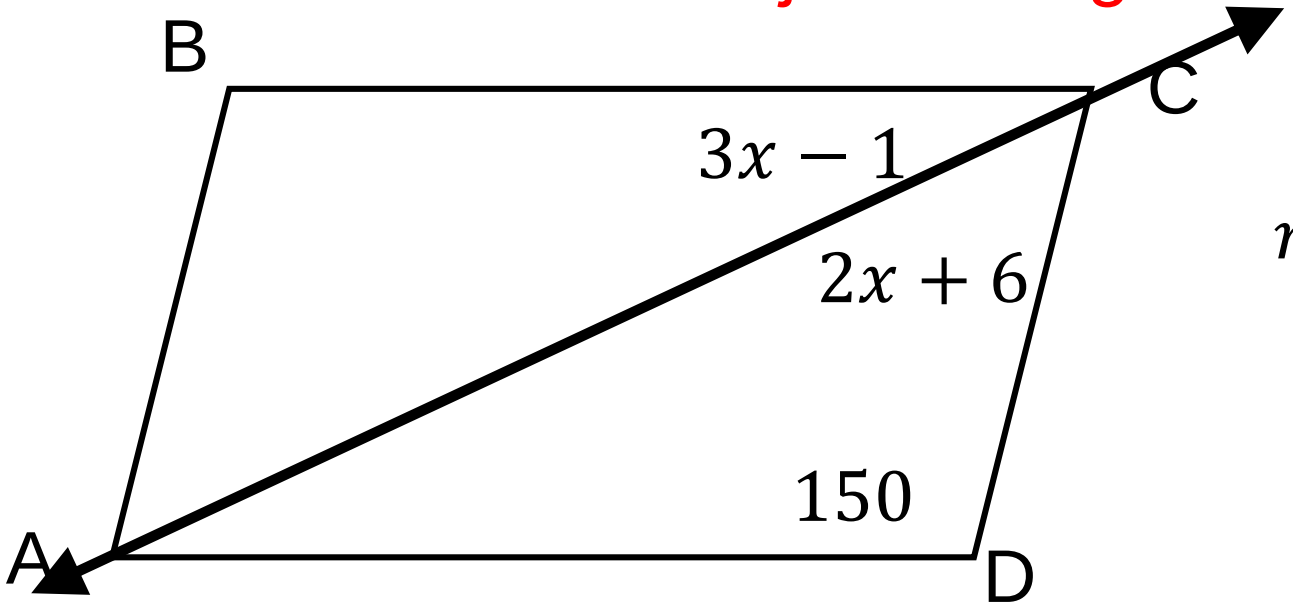
$x = ?$

$m\angle D + m\angle C = 180$

$2x + 10 + 4x - 70 = 180$

$6x = 240$

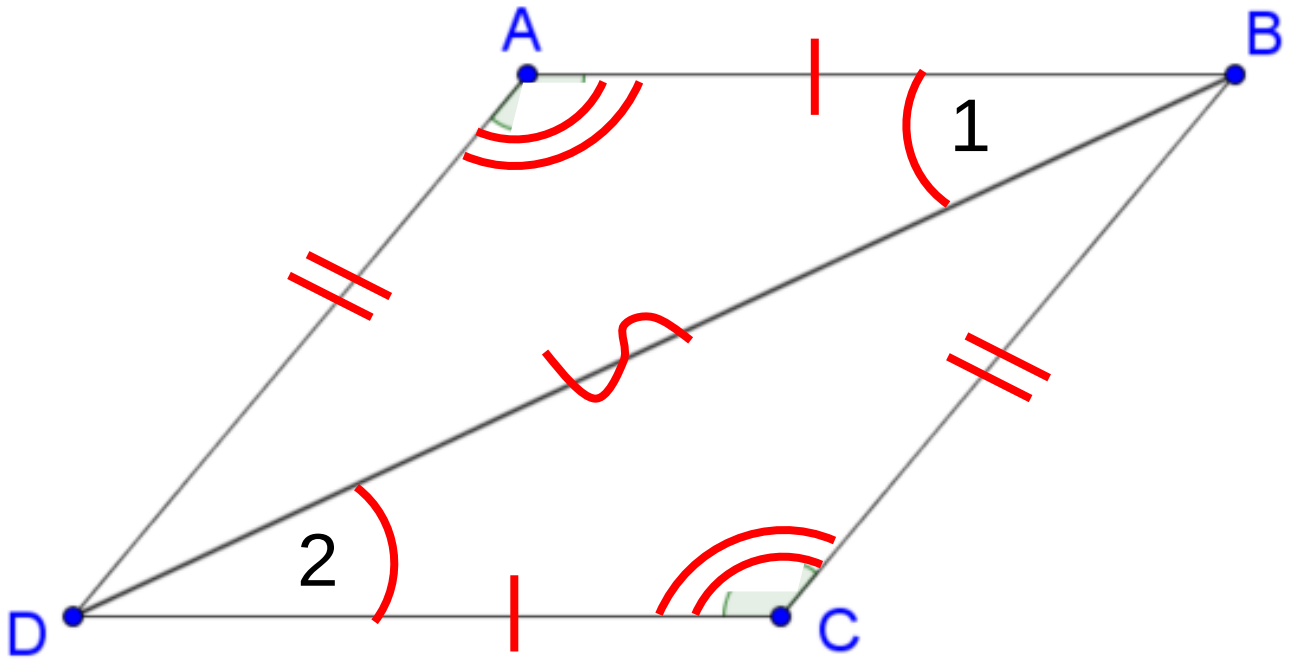
Math Problems from “Adjacent Angles of Parallelograms are Supplementary”



$x = ?$

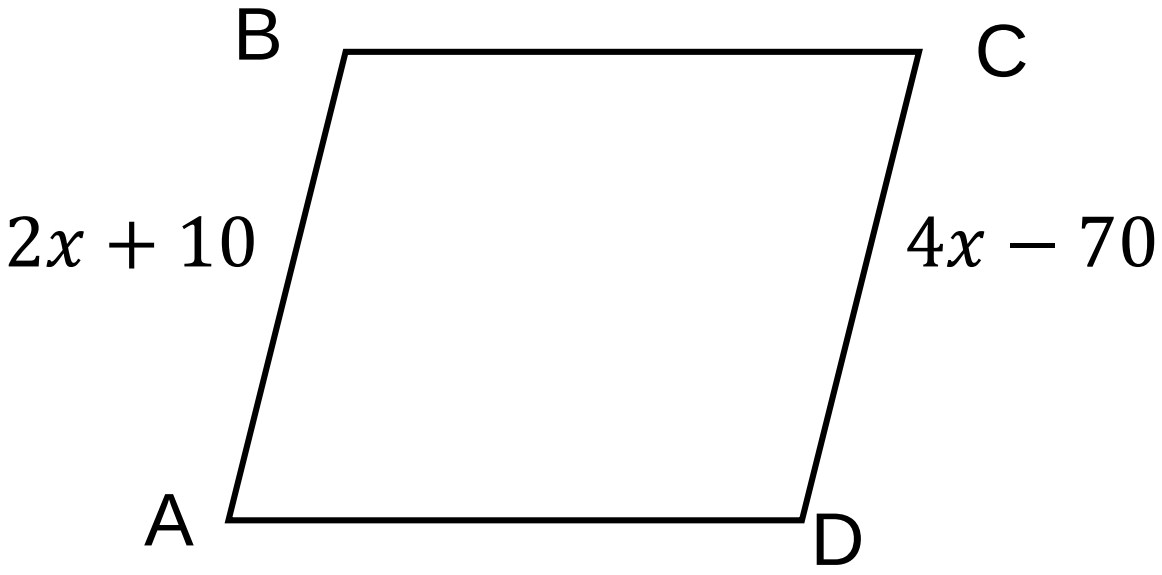
$$m\angle BCA + m\angle DCA + m\angle D = 180$$

$$3x - 1 + 2x + 6 + 150 = 180$$



4. Opposite Sides of parallelograms are congruent.

Math Problems from “Opposite Sides of Parallelograms are congruent”



$x = ?$

AB = CD

$2x + 10 = 4x - 70$

$2x = 80$

$x = 40$

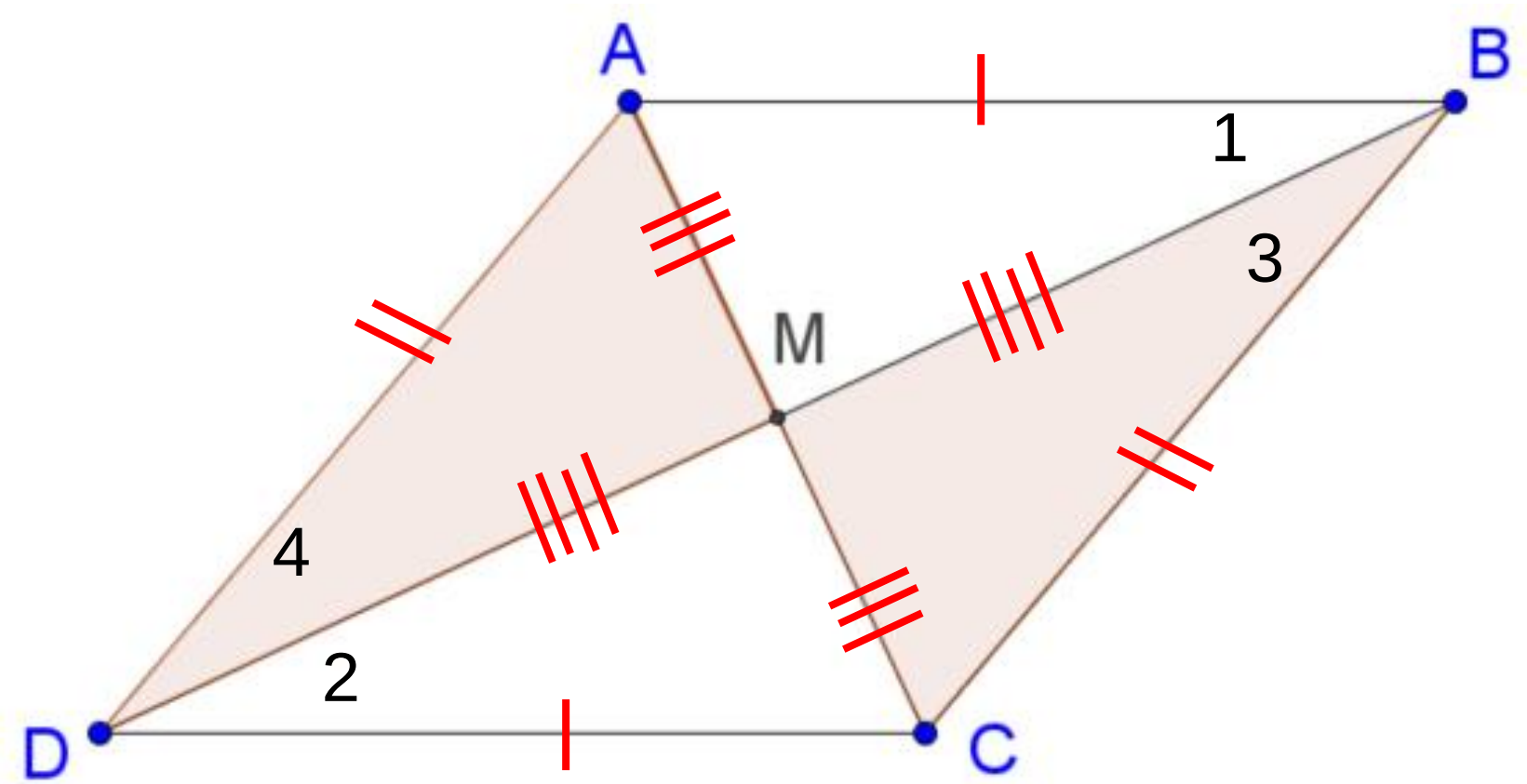
$AB = ?$

$AB = 2x + 10$

$AB = 2(40) + 10$

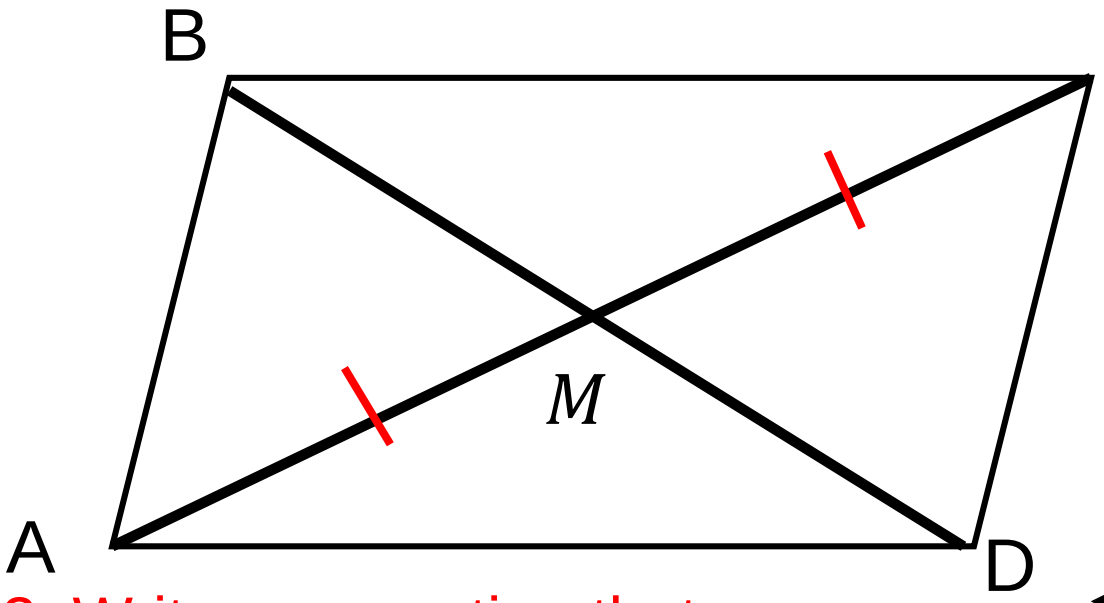
$AB = 90$

6. Diagonals of parallelograms bisect each other.



$$\overline{AM} \cong \overline{CM} \qquad \overline{DM} \cong \overline{BM}$$

Math Problems from "Diagonals of Parallelograms BISECT each other."

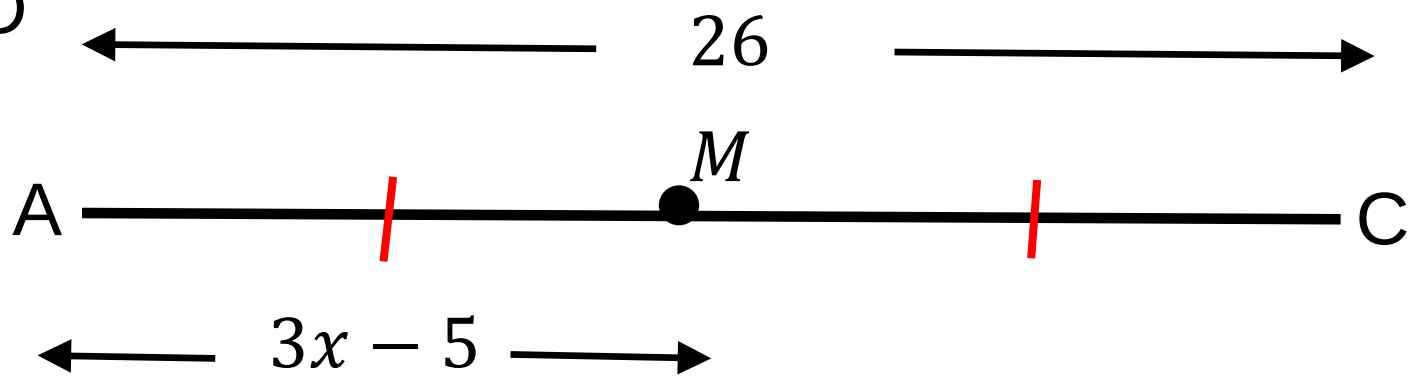


$AC = 26$

$AM = 3x - 5$

x = ?

1. Draw a picture of the diagonal and label the known measurements.



2. Write an equation that relates the lengths in the problem. $2 * AM = AC$

$2(3x - 5) = 26$

3. Solve for 'x'. $3x - 5 = 13$

$3x = 18$

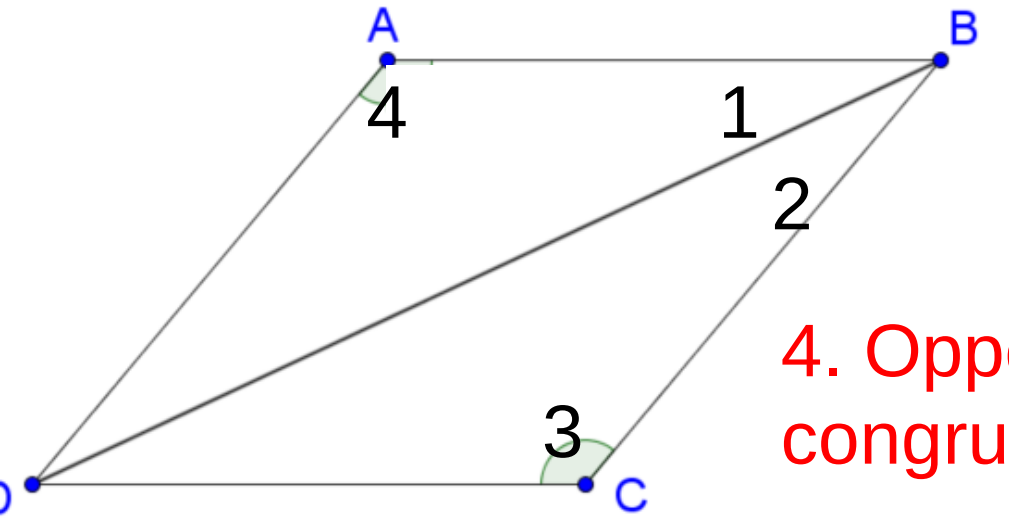
$x = 6$

Parallelogram Properties:

1. Opposite Angles are congruent. $m\angle 3 = m\angle 4$

2. Consecutive Interior Angles are supplementary.

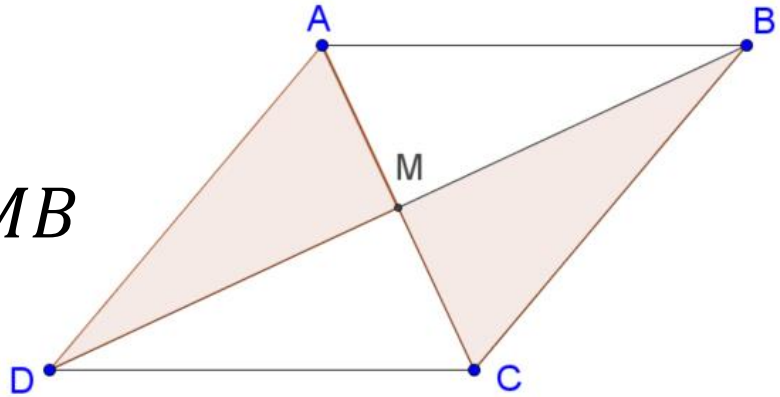
$$m\angle 1 + m\angle 2 + m\angle 3 = 180$$



3. A diagonal of a parallelogram forms two congruent triangles. $\triangle DAB \cong \triangle CBD$

4. Opposite Sides of parallelograms are congruent. $AB = CD$

5. Opposite triangles formed by the diagonals (plural) form congruent triangles. $\triangle AMD \cong \triangle CMB$



6. Diagonals of parallelograms bisect each other.

$$AM = MC$$

$$AC = 2 * MC$$