Flashcards: Properties of Parallelograms

Card 1   Question   Rhombus LMNO with LM = 3x + 3 and MN = 2x +10. Find the value of x.

Answer   By the definition of a rhombus, LM = MN

$$3x + 3 = 2x + 10$$
$$x + 3 = 10$$
$$x = 7$$

Card 2   Question   Rectangle DEFG with diagonal DF = 5a – 12 and diagonal ED = a + 36. Find the value of a.

Answer   Since the diagonals of a rectangle are congruent, DF = ED

$$5a - 12 = a + 36$$
$$4a - 12 = 36$$
$$4a = 48$$
$$x = 12$$

Card 3   Question   Rhombus PQRS with diagonals intersecting at C. Angle PQC = 5x and angle RQC = 2x + 42. Find the measure of angle PQR

Answer   Because the diagonals of a rhombus bisect the angles of a rhombus, angle PQC is congruent to angle RQC.

$$5x = 2x + 42$$
$$3x = 42$$
$$x = 14$$

Then, substituting 14 for x and multiplying by 2 gives the measure of angle PQC

$$m\angle PQR = 2 * m\angle PQC$$
$$= 2 * 5x$$
$$= 2 * 5 * 14$$
$$m\angle PQR = 140$$

Card 4	Question	Square KLMN with side KL = 15x + 2 and side LM 5x + 14. Find the length of each side
	Answer	By the definition, the sides of a square are congruent, so KL = LM.

$15x + 2 = 5x + 14$
$10x + 2 = 14$
$10x = 12$
$x = 1.2$

Substituting 1.2 for x gives the length of a side

$15x + 2$
$15 * 1.2 + 2$
20

Each side is 20