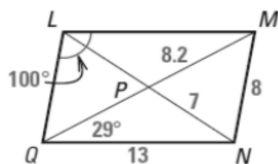## Using Properties of Parallelograms Sides and Diagonals

LMNQ is a parallelogram LMNQ. Find the requested piece(s) and justify your answer.
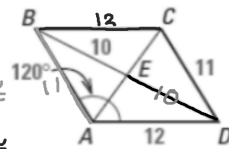
1. **LM**

2. **LP**

3. **LQ**

4. **QP**

L, M, 8.2, 100°, P, 7, 8, 29°, Q, 13, N

Using Properties of Parallelograms Sides and Diagonals
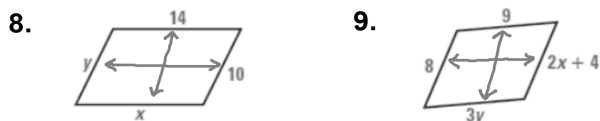
ABCD is a parallelogram. Find the requested piece(s) and justify your answer.

5. **DE** 10 b/c diagonals are bisected.

6. **BA** 11 b/c opp. sides are ≅

7. **BC** 12 b/c opp sides are ≅.

B, 12, C, 10, 120°, E, 11, A, 12, D

Using Properties of Parallelograms Sides and Diagonals

The following are parallelograms. Find the requested piece(s) and justify your answer.

8.

14, y, 10, x

9.

9, 8, 2x + 4, 3y

a. **x = 14** } b/c opp sides are ≅.

b. **y = 10**

a. **x =** $\dfrac{2x+4=8}{}$ $\dfrac{2x=4}{2}=\dfrac{4}{2}$ (x = 2)

b. **y =** $\dfrac{3y}{3}=\dfrac{9}{3}$ (y = 3)

b/c opp sides are ≅.

Using Properties of Parallelograms Sides and Diagonals

The following are parallelograms. Find the requested piece(s) and justify your answer.

10.

2f − 5, 4+2=6, g, 6, 5f − 17

11.

6y + 10, 2x + 10, 3x, 7y + 1

a. **f =** $\dfrac{5f-17=2f-5}{-2f \quad -2f}$ $\dfrac{3f-17=-5}{+17 \quad +17}$ $\dfrac{3f}{3}=\dfrac{12}{3}$ (f = 4)

b. **g =** (g = 6)

b/c diagonals are bisected.

a. **x =** $\dfrac{3x=2x+10}{-2x \quad -2x}$ (x = 10)

diagonals are bisected

b. **y =** $\dfrac{7y+1=6y+10}{-6y \quad -6y}$ $\dfrac{y+1=10}{-1 \quad -1}$ $\underline{y=9}$ opp sides are ≅.

Using Properties of Parallelograms Sides and Diagonals

The following are parallelograms. Find the requested piece(s) and justify your answer.

12.

3.5, r, 6, s

13.

2z + 1, 4w, w + 3, 4z − 5

a. **r = 6** } b/c diagonals are bisected

b. **s = 3.5**

a. **w =** $\dfrac{4w=w+3}{-w \quad -w}$ $\dfrac{3w}{3}=\dfrac{3}{3}$ (w = 1)

b. **z =** $\dfrac{2z+1=4z-5}{-2z \quad -2z}$ $\dfrac{1=2z-5}{+5 \quad +5}$ $\dfrac{6}{2}=\dfrac{2z}{2}$ (z = 3)

b/c opp sides are ≅.

Using Properties of Parallelograms Sides and Diagonals

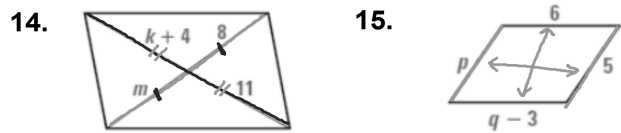**The following are parallelograms. Find the requested piece(s) and justify your answer.**

14.

k + 4, 8, m, 11

15.

6, p, 5, q − 3

a. **k =** $\dfrac{k+4=11}{-4 \quad -4}$ $k = 7$

b. **m = 8**

diagonals are bisected.

a. **p = 5** opp sides are ≅.

b. **q =** $\dfrac{q-3=6}{+3 \quad +3}$ $\dfrac{q=9}{}$