

**Example: Perimeter and Area of a Rhombi****Problem:**

Find the perimeter and area of rhombus ABCD. AC equals 24 meters and DB equals 32 meters.

**Solution:**

Recall that the diagonals of a parallelogram are perpendicular and bisect each other. This means we can find the length of AM and segment BM and use the right triangle ABM to find the length of side AB.

Since the diagonals bisect each other, segment AM is half the length of segment AC.

AM is half of 24. AM equals 12.

The same process can be used to find the length of segment BM. Segment BM is half the length of segment DB.

BM is half of 32. BM equals 16.

Since we have a right triangle, we can use the Pythagorean Theorem to find the length of AB. AM squared plus BM squared equals AB squared.

$12^2 + 16^2 = AB^2$

Solve this equation for AB. AB equals 20.

Remember that a rhombus has four sides with equal length. This means that we can find the perimeter by multiplying the side length by 4.

The perimeter equals 4 times 20. This is 80 meters.

We learned that we can find the area by multiplying one-half by the product of the diagonals.

This area equals one-half times AC times DB.

The area of this figure is one-half times 24 times 32, which equals 384 square meters.