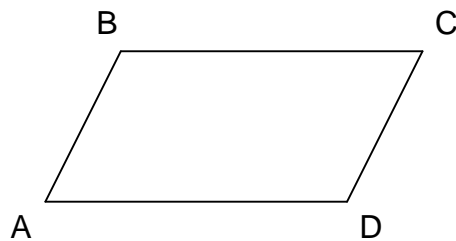1. The perimeter of a rhombus is 40. What is the area of the square?

If a is the side of the square, then the perimeter is $P = 4a$, so $a = \frac{P}{4} = \frac{40}{4} = 10$.

The area of the square is $S = a \times a = 10 \times 10 = 100$

Answer: $S = 100$

2. If one angle of a parallelogram is 60 degrees, find the number of degrees in the remaining three angles.
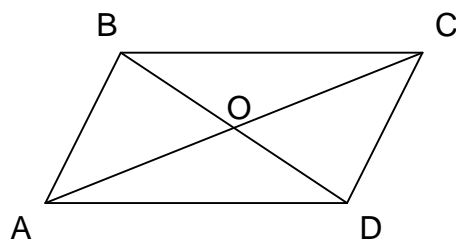

Opposite angles of parallelogram are equal, so if $\angle A = 60^0$, then $\angle C = 60^0$.

Adjacent angles of parallelogram are supplementary, so $\angle A + \angle B = 180^0$, so

$\angle B = 180^0 - 60^0 = 120^0$ and $\angle D = \angle B = 120^0$

Answer: $\angle B = 120^0$, $\angle D = 120^0$ and $\angle C = 60^0$.

3. Are the diagonals of a parallelogram perpendicular? Why or why not? Explain.
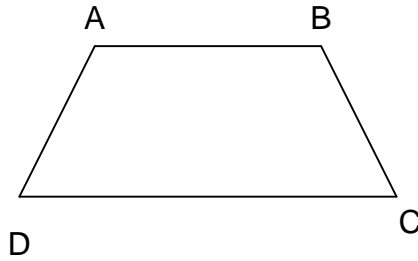

If ABCD is a parallelogram, then

1)AB=CD, BC=AD

2)AO=CO, BO=DO but

$AB \neq BC$, so $\Delta ABO \neq \Delta ADO$ and so $\angle AOB \neq \angle AOD$

$\angle AOB$ and $\angle AOD$ are supplementary $\angle AOB + \angle AOD = 180^0$.

Since $\angle AOB \neq \angle AOD$, so $\angle AOB \neq \angle AOD \neq 90^0$ and so the diagonals of a parallelogram are not perpendicular

4. Does an isosceles trapezoid have two sets of parallel sides? Why or why not? Explain.
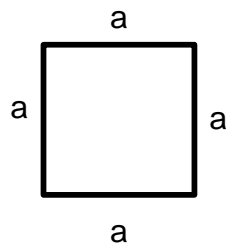

If there are two sets of parallel sides it will be a parallelogram and not trapezoid

5. Does a rhombus have two sets of congruent sides? Why or why not? Explain.

A rhombus have not two sets of congruent sides because all four sides of a rhombus are congruent to each other.

6. The perimeter of a square is 160 feet. What is the area of the square?

The perimeter of a square is $P = 4a$, so $a = \frac{P}{4} = \frac{160}{4} = 40\ feet.$

The area of the square is $S = a \times a = 40 \times 40 = 1600$ square feet

7. True or false;

a. A rhombus is a parallelogram with four congruent sides - true
b. A rectangle is a parallelogram with four right angles - true
c. A square is a rectangle and a rhombus - true
d. A rhombus is always a square – false
e. Every parallelogram is a regular quadrilateral - false
f. In a rectangle, the diagonals are perpendicular - false

8. Name the bases of the trapezoid shown below;

Bases are parallel sides of the trapezoid, so AC and BD are the bases

 9. True or False;

a. A trapezoid has two bases - true
b. A trapezoid may have a right angle- true
c. A trapezoid may have three congruent- true