General Ability

Q7(a): The sum of three consecutive odd numbers is 273. What are the three odd numbers.

Solution :

To solve for three consecutive odd numbers whose sum is 273, let the numbers be x, $x+2$, and $x+4$. These are consecutive odd numbers.

Step 1: Write the equation.

$$x + (x+2) + (x+4) = 273$$

Step 2: Simplify the equation

$$3x + 6 = 273.$$

Step 3: Solve for x.

$$3x = 273 - 6$$

$$3x = 267$$

$$x = \frac{267}{3}$$

$$\boxed{x = 89}$$

Step 4: Find the three Consecutive odd numbers.

1 The first number is $x = 89$.

2 The second number is $x + 2$

$$= 89 + 2$$

$$= \boxed{91}$$

3 The third number is $x + 4$

$$= 89 + 4$$

$$= \boxed{93}$$

Final Answer:

The three Consecutive odd numbers are 89, 91 and 93.

Q7(b) The average of 11 numbers is 63, that of the first 6 numbers are 60 and that of the last 6 numbers are 65. Find the 6th number.

Solution :

To find the 6th numbers, proceed step by step:

Given:

1. The average of 11 numbers is 63

Total sum of the 11 numbers:

Sum of all 11 numbers = 63×11

= $\boxed{693}$

2. The average of the first 6 numbers is 60

Total Sum of the first 6 numbers =

= 60×6

= $\boxed{360.}$

3. The average of the last 6 numbers is 65

Total sum of the last 6 numbers:

Sum of the last 6 numbers

= 65×6

= $\boxed{390}$

Step 1: Key observation.

The 6th number is included in both the first 6 numbers and the last 6 numbers. Thus it is counted twice in the number of the two groups.

Step 2: Combine the totals

The total sum of the first 6 numbers and the last 6 numbers is:

$$\text{Sum of both groups} = 360 + 390$$
$$= \boxed{750}$$

However, this sum includes the 6th number twice. Subtract the total sum of all 11 numbers to find the 6th number:

$$6\text{th number} = 750 - 693$$
$$= \boxed{57}$$

Final Answer:

The 6th number is $\boxed{57}$

Q7.(c) A farmer keeps hens and rabbits on his farm. One day he counted the total of 70 heads and 196 legs. How many more hens than rabbits does he have?

Solution:

To solve the problem, let h be the number of hens and r be the number of rabbits.

Step 1: Use the given information

1. Total heads (hens + rabbits):

$$h + r = 70 \longrightarrow (i)$$

2. Total legs (hens have 2 legs, rabbits have 4 legs):

$$2h + 4r = 196 \longrightarrow (ii)$$

Step 2: Simplify equation (2)

Divide the entire equation (ii) by 2 to make it simpler.

$$h + 2r = 98$$

Step 3: Solve the system of equations

From equation ①, express h in terms of r:

$$h = 70 - r$$

Substitute $h = 70 - r$ into equation ⑪

$$(70 - r) + 2r = 98$$

Simplify:

$$70 + r = 98$$
$$r = 98 - 70$$
$$\boxed{r = 28}$$

Step 4: Find h.

Substitute $r = 28$ in equation ①

$$h + 28 = 70$$
$$h = 70 - 28$$
$$\boxed{h = 42}$$

Step 5: Calculate the difference

$h = 42$ hens.

$r = 28$ rabbits.

The number of more hens than rabbits is:

$$42 - 28 = \boxed{14}$$

Final Answer:

The farmer has 14 more hens than rabbits.

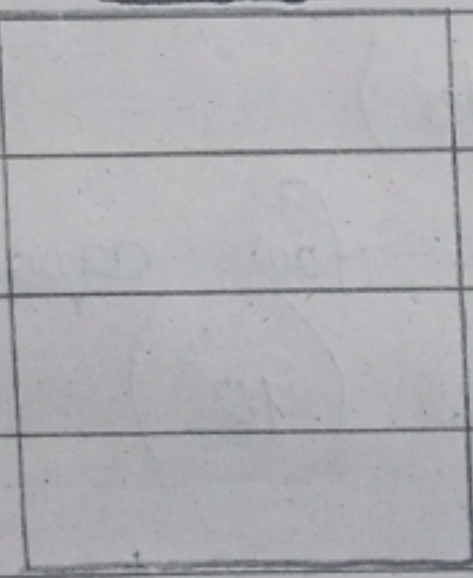**Q7: (d)** what is Polygon? Describe different types of regular Polygon.

<u>Definition of a Polygon</u> :

A Polygon is a closed, two-dimensional geometric figure made up of straight line segments (sides) that meet at points called vertices. Polygon can have three or more sides. They are classified based on the number of sides and angles.
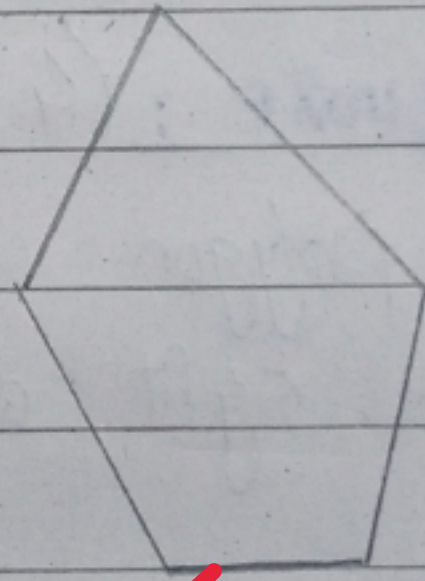
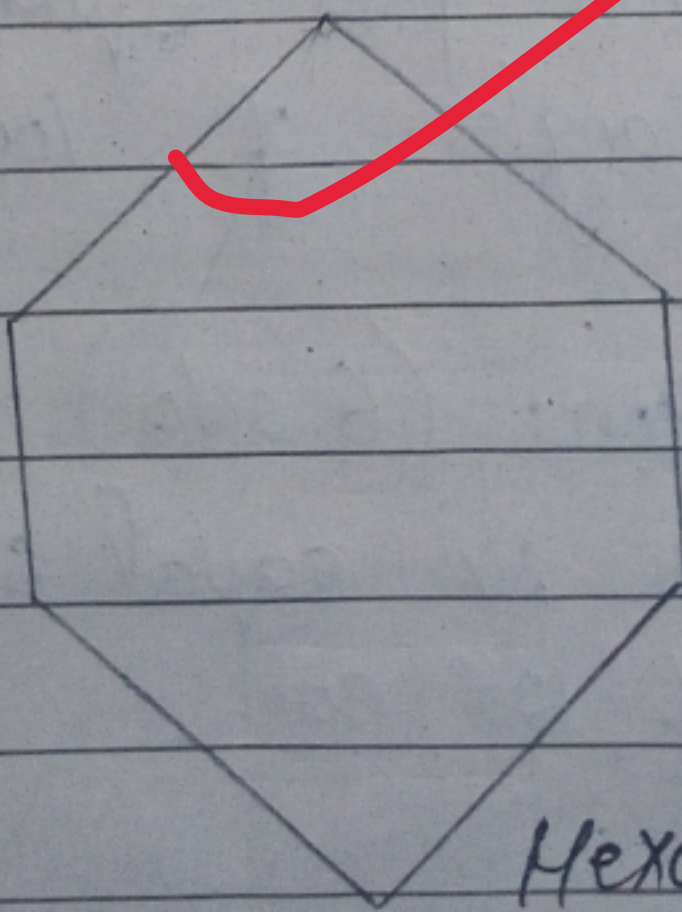## <u>Different shapes of Polygons</u> :
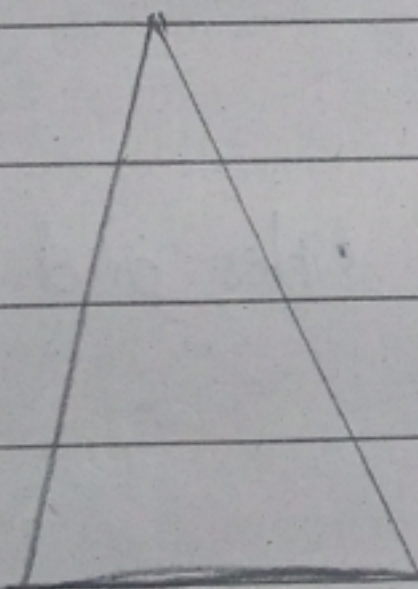
Triangle   Quadrilateral   Pentagon.

Hexagon.

I. Types of Regular Polygons:

A regular polygon is a polygon where all sides are equal in length and all interior angles are equal.
Below are different types of regular polygons, classified by the number of sides:

1. Equilateral Triangle : (3 sides)

A polygon with three equal sides and three equal angles, each measuring 60°.

2. Square : (4 sides)

A polygon with four equal sides and four right angles (90°).

3. Regular Pentagon : (5 sides)

A polygon with five equal sides and interior angles of 108° each.

4. Regular Hexagon: (6 sides)

A polygon with six equal sides and interior angles of 120° each.

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5 Regular Octagon: (8 sides)

A polygon with eight equal sides and interior angles of $135°$ each.

6. Regular Nonagon: (9 sides)

A polygon with nine equal sides and interior angle of $140°$ each.

7. Regular Decagon: (10 sides)

A polygon with ten equal sides and interior angles of $144°$ each.

Regular Polygons range from three-sided triangle to multi-sided figures like decagons with each type having its unique angle properties.

Good answers!!!