

Chapter 9: Motion and Types of Motion

EXERCISE [PAGE 69]

Exercise | Q 1.1 | Page 69

Identify the type of motion.

Movement of the earth around the sun: _____.

SOLUTION

Movement of the earth around the sun: **Circular and periodic motion.**

Exercise | Q 1.2 | Page 69

Identify the type of motion.

Movement of a ceiling fan: _____.

SOLUTION

Movement of a ceiling fan: **Circular motion.**

Exercise | Q 1.3 | Page 69

Identify the type of motion.

A meteor falling from the sky: _____.

SOLUTION

A meteor falling from the sky: **Non-uniform linear motion.**

Exercise | Q 1.4 | Page 69

Identify the type of motion.

A rocket launched from the ground: _____.

SOLUTION

A rocket launched from the ground: **Non-uniform linear motion.**

Exercise | Q 1.5 | Page 69

Identify the type of motion.

A fish swimming in water: _____.

SOLUTION

A fish swimming in water: **Random motion.**

Exercise | Q 1.6 | Page 69

Identify the type of motion.

The plucked string of a sitar: _____.

SOLUTION

The plucked string of a sitar: **Oscillatory motion**.

Exercise | Q 2.1 | Page 69

Fill in the blank.

If a ball is released from the terrace of a building, it comes down in _____ motion. On the other hand, it reaches the ground in non-linear motion if it is thrown with force away from the terrace in a direction parallel to the terrace.

1. Linear
2. non-linear
3. circular
4. uniform linear
5. **non-uniform linear**
6. uniform circular
7. non-uniform circular
8. random

SOLUTION

If a ball is released from the terrace of a building, it comes down in **non-uniform linear** motion. On the other hand, it reaches the ground in non-linear motion if it is thrown with force away from the terrace in a direction parallel to the terrace.

Exercise | Q 2.2 | Page 69

Fill in the blank.

The motion of an aeroplane on the runway before take-off is _____ motion.

1. Linear
2. non-linear
3. circular
4. uniform linear
5. **non-uniform linear**
6. uniform circular
7. non-uniform circular
8. random

SOLUTION

The motion of an aeroplane on the runway before take-off is **non-uniform linear** motion.

Exercise | Q 2.3 | Page 69

Fill in the blank.

The kite looking for its prey flies with _____ motion in the sky.

1. Linear
2. non-linear
3. circular
4. uniform linear
5. non-uniform linear
6. uniform circular
7. non-uniform circular

8. random

SOLUTION

The kite looking for its prey flies with **random** motion in the sky.

Exercise | Q 2.4 | Page 69

Fill in the blank.

Children sitting in a rotating giant wheel have _____ motion, while those sitting in a merry-go-round have a uniform circular motion.

1. Linear
2. non-linear
3. circular
4. uniform linear
5. non-uniform linear
6. uniform circular
7. **non-uniform circular**
8. random

SOLUTION

Children sitting in a rotating giant wheel have **non-uniform circular** motion, while those sitting in a merry-go-round have a uniform circular motion.

Exercise | Q 3.1 | Page 69

How are we different Oscillatory motion and linear motion?

SOLUTION

Oscillatory motion	Linear motion
The type of motion in which the object moves to and from repeatedly about a mean or a fixed position is known as oscillatory motion.	The type of motion in which the object moves from one point to another in a straight line is called linear motion.
For example: Movement of the pendulum of a clock	For example: Vehicles moving on a straight road

Exercise | Q 3.2 | Page 69

How are we different Linear motion and random motion?

SOLUTION

Linear motion	Random motion
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The type of motion in which the object moves from one point to another in a straight line is called linear motion.	The type of motion in which the direction of motion and the speed of an object changes continuously is called random motion.
For example: Vehicles moving on a straight road	For example: Children playing in a garden

Exercise | Q 3.3 | Page 69

How are we different Random motion and oscillatory motion?

SOLUTION

Random motion	Oscillatory motion
The type of motion in which the direction of motion and the speed of an object changes continuously is called random motion.	The type of motion in which the object moves to and fro repeatedly about a mean or a fixed position is known as oscillatory motion.
For example: Children playing in a garden	For example: Movement of the pendulum of a clock

Exercise | Q 4.1 | Page 69

Explain in your own words and give one example.

Linear motion

SOLUTION

An object is said to have linear motion if it moves from one point to another in a straight line.

For example: The motion of a moving car on a straight road.

Exercise | Q 4.2 | Page 69

Explain in your own words and give one example.

Oscillatory motion

SOLUTION

The type of motion in which the object moves to and fro repeatedly about a mean or a fixed position is known as oscillatory motion.

For example: The movement of the pendulum of a clock.

Exercise | Q 4.3 | Page 69

Explain in your own words and give one example.

Circular motion

SOLUTION

An object is said to possess circular motion if it moves from one point to another in such a way that its distance from a fixed point always remains constant.

For example: The movement of the blades of a fan.

Exercise | Q 4.4 | Page 69

Explain in your own words and give one example.

Random motion

SOLUTION

The type of motion in which the direction of motion and the speed of an object changes continuously is called random motion.

For example: Children playing in a garden.

Exercise | Q 4.5 | Page 69

Explain in your own words and give one example.

Periodic motion

SOLUTION

An object is said to possess periodic motion if it moves in such a way that it repeats its motion after a certain interval of time.

For example: The motion of a swing.

Exercise | Q 5.1 | Page 69

Answer the following question in your own words.

Which types of motion are seen in birds flying in the sky?

SOLUTION

Birds flying in the sky have random motion as their direction of motion and speed continuously changes.

Exercise | Q 5.2 | Page 69

Answer the following question in your own words.

Write in detail about your experience with various types of motion while riding a bicycle on a road.

SOLUTION

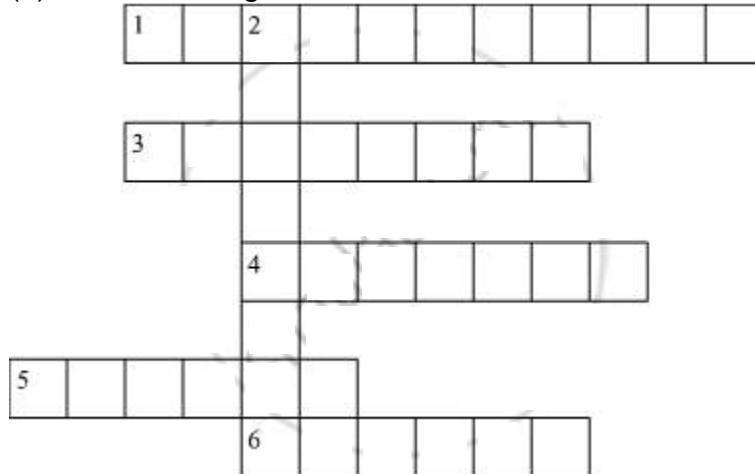
While riding a bicycle on a road, the following types of motion can be seen:

- The wheels of the bicycle are in uniform or non-uniform circular.
- The legs of the person riding the bicycle are in uniform or non-uniform circular motion.
- The bicycle is in uniform or non-uniform linear motion. It can also be in non-uniform motion.

Exercise | Q 6 | Page 69

Complete the puzzle using words for types of motion:

- (1) a spring is stretched and one end is released
- (2) a minute hand
- (3) a see-saw
- (4-5) children in a march past
- (6) a stone rolling down a hillside.



SOLUTION

