

I. Fill in the blanks.

- The Ones digit in the square of 77 is _____
- The square root of 121 is _____
- If a number ends with 5, its square ends with _____
- A square number will not end with numbers _____
- The number of perfect square numbers between 300 and 500 is _____

I. Answer the following. (4×2 =8)

- Express 19^2 as the sum of two consecutive positive integers
- Find Pythagorean triplet whose largest number is 65
- Find the square root of 144 by repeated subtraction method.
- Find the Square root by Prime factorization method.
i) 1156

Answer Key:

- I. 1) 9 2)11 3)5 4) 2, 3, 7, 8 5)5

II. 1. $19^2 = 361$, $19^2 = \frac{19^2 - 1}{2}, \frac{19^2 + 1}{2} = \frac{361 - 1}{2}, \frac{362}{2} = 180, 181$

2. Largest number = 65, WKT $2m, m^2 + 1, m^2 - 1$ form

Pythagorean triplet $m^2 + 1 = 65$ - $m^2 = 65 - 1 = 64$, $m = \sqrt{64} = 8$

$2m = 2 \times 8 = 16$, $m^2 - 1 = 8^2 - 1 = 64 - 1 = 63$

 \therefore Required Pythagorean triplet is 16, 63, 65

- Step 1 $\rightarrow 144 - 1 = 143$
- Step 2 $\rightarrow 143 - 3 = 140$
- Step 3 $\rightarrow 140 - 5 = 135$
- Step 4 $\rightarrow 135 - 7 = 128$
- Step 5 $\rightarrow 128 - 9 = 119$
- Step 6 $\rightarrow 119 - 11 = 108$
- Step 7 $\rightarrow 108 - 13 = 95$
- Step 8 $\rightarrow 95 - 15 = 80$
- Step 9 $\rightarrow 80 - 17 = 63$
- Step 10 $\rightarrow 63 - 19 = 44$
- Step 11 $\rightarrow 44 - 21 = 23$
- Step 12 $\rightarrow 23 - 23 = 0$

We get zero at the 12th Step, $\therefore \sqrt{144} = 12$

4. 1156

$$\begin{array}{r|l} 2 & 1156 \\ 2 & 578 \\ 17 & 289 \\ 17 & 17 \\ \hline & 1 \end{array} \quad \begin{aligned} 1156 &= 2 \times 2 \times 17 \times 17 \\ &= 2^2 \times 17^2 \\ &= \sqrt{(2 \times 17)^2} \\ &= 2 \times 17 = 34 \end{aligned}$$

1. Round the following decimals to the nearest whole number (3m)

- i) 8.71 ii) 1.22

2. Round the decimal number to the given place value (3m)

- i) 5.992 to tenth place

3. Round the decimal number upto 2 places of decimal – 87.755 (3m)

4. Round the decimal number upto 3 places of decimal (4m)

1251.2345

Answer key .

1. i) Underline the digit to be rounded – 8.71 since the digit next to the underlined digit is 7 which is greater than 5, we should add 1 to the underlined digit. \therefore The rounded value of 8.71 is 9ii) Underlined digit to be rounded is 1.23 since the digit next to the underlined digit is 2 which is less than 5, the underlined digit will remain the same. \therefore The rounded value of 1.23 is 1.2. Underline the digit to be rounded – 5.992 since the digit next to the underlined digit (tenth place) is a which is greater than 5, we should add 1 to the underlined digit. \therefore The rounded value of 5.992 is 6.0

3. Round 87.755 upto 2 places of decimal means round to the hundredth place 87.755 since the digit next to the underlined digit is 5, we should add 1 to the underlined digit.

 \therefore Rounder value of 87.755 upto 2 places of decimal is 87.76

4. Round 1251.2345 upto 3 places of decimal means round to the nearest Thousandth place.

Underline the digit to be rounded 1251.2345 since the digit next to the Thousandth place is 5, we should add 1 to the underlined digit. Hence we get 1251.235

The rounded value of 1251.2345 upto 3 places of decimal 1251.235

I. Fill in the blanks. (9 Marks)

1. The _____ is the primary and the major source of natural light
2. Some living organisms have the ability to produce light named by _____
3. The glowing of hot iron rod is a kind of _____ light.
4. _____ is the only source of energy for plants.
5. The plants produce food using the energy from sunlight, carbon – di – oxide and water by the process called _____
6. The two types of sources of light are _____ and _____
7. Light travels in _____ line.
8. _____ is a simple device which helps us to understand about the rectilinear propagation of light.

II. Answer in short. (1½ × 2 =3)

9. Give examples of incandescent sources of light.
10. Give examples for gas discharge sources.

Answer Key.

1. Sun
2. Bioluminescence
3. Incandescent light
4. Light
5. Photosynthesis
6. Natural and artificial
7. Straight
8. Pinhole camera

II. 9. Eg: Candle, Incandescent lamp

10. Neon lamp Sodium lamp

I. Answer in detail. (1×6 =5)

1. Describe an experiment to show that sound cannot travel through vacuum.

II. Fill in the blanks. (6×1 =6)

1. The loudness of a sound depends on its _____
2. The unit of loudness of sound is _____
3. The _____ is the characteristic of sound that enables us to distinguish between a flat sound and shrill sound.
4. The quality or _____ is the characteristic of sound that enables us to distinguish between two sounds that have the same pitch and amplitude.
5. In an orchestra, the _____ produced by some musical instruments may have the same pitch and loudness
6. Higher the frequency of sound, higher will be the _____

Answer Key.

I. Answer in detail.

1. Refer Text book page number 2 and 3

II. Fill in the blanks.

1. amplitude
2. decibel (dB)
3. Pitch
4. timbre
5. sound
6. pitch

