I. Very Short Answer Type Questions

1. Classify the following as rational or irrational:

   (i) $3 + \sqrt{5}$ (ii) $\dfrac{\sqrt{12}}{\sqrt{3}}$ (iii) $\left(2 + \sqrt{3}\right) + \left(2 - \sqrt{3}\right)$ (iv) $\pi - 2$ (v) $\dfrac{1}{\sqrt{5}}$ (vi) $\left(\sqrt{2} - 1\right)^2$

2. Identify the rational number among the following numbers.

   (i) $\sqrt{\dfrac{64}{8}}$ (ii) $\sqrt{98}$ (iii) $\dfrac{\sqrt{98}}{\sqrt{2}}$ (iv) $\sqrt{14}$

3. Identify an irrational number among the following numbers.

   (i) $\left(1 + \sqrt{3}\right) - \left(\sqrt{3} - 1\right)$ (ii) $2 + 5\sqrt{5} - \sqrt{125}$ (iii) $\dfrac{\pi}{2\pi}$ (iv) $\dfrac{\sqrt{2}}{2} + \dfrac{\sqrt{2}}{2}$

4. Simplify the following expressions:

   (i) $\left(5 + \sqrt{7}\right)\left(2 + \sqrt{5}\right)$ (ii) $\left(5 + \sqrt{5}\right)\left(5 - \sqrt{5}\right)$ (iii) $\left(\sqrt{3} + \sqrt{7}\right)^2$ (iv) $\left(\sqrt{11} - \sqrt{7}\right)\left(\sqrt{11} + \sqrt{7}\right)$

5. Simplify each of the following expressions:

   (i) $\left(3 + \sqrt{3}\right)\left(2 + \sqrt{2}\right)$ (ii) $\left(3 + \sqrt{3}\right)\left(3 - \sqrt{3}\right)$ (iii) $\left(\sqrt{5} + \sqrt{2}\right)^2$ (iv) $\left(\sqrt{5} - \sqrt{2}\right)\left(\sqrt{5} + \sqrt{2}\right)$

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1. Check the truthfulness of the following statements. Give reason in support of your answer:
   (*i*) Some rational numbers are integers.
   (*ii*) Every whole number is a natural number.
   (*iii*) Every integer is a rational number.
   (*iv*) There are infinite rational numbers between two integers.
   (*v*) Zero is a rational number.

2. Represent the following rational numbers on the number line: $\dfrac{-8}{3}, 1\dfrac{2}{3}, \dfrac{3}{4}, -2\dfrac{1}{2}$.

3. Find a rational number between -3 and 5.

Short Answer Type Questions-I

4. Find five rational numbers between 1 and 2.

5. Find three rational numbers between $\dfrac{2}{7}$ and $\dfrac{3}{7}$.

6. Find three rational numbers between $\dfrac{3}{5}$ and $\dfrac{7}{8}$.

7. Find five rational numbers between $\dfrac{\sqrt{5}}{7}$ and $\dfrac{4}{9}$

8. Find two rational numbers between $1\dfrac{2}{5}$ and $1\dfrac{3}{4}$.

9. Find a rational number between $\dfrac{7}{5}$ and $\dfrac{8}{5}$.