

Exercise 2.2

Q.1 Identify the property used in the following.

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|--------|-------------------------------------|--|
| (i) | $a + b = b + a$ | Commutative Property <i>w.r.t</i> addition |
| (ii) | $(ab)c = a(bc)$ | Associative Property <i>w.r.t</i> multiplication |
| (iii) | $7 \times 1 = 7$ | Multiplicative Identity |
| (iv) | $x > y$ or $x = y$ or $x < y$ | Trichotomy |
| (v) | $ab = ba$ | Commutative <i>w.r.t</i> multiplication |
| (vi) | $a + c = b + c = a + b$ | Cancellation Property of addition |
| (vii) | $5 + (-5) = 0$ | Additive Inverse |
| (viii) | $7 \times \frac{1}{7} = 1$ | Multiplicative inverse |
| (ix) | $a > b \Rightarrow ac > bc (c > 0)$ | Multiplicative property |

Q.2 Fill in the following blanks by stating the properties of real numbers used.

$$\begin{aligned}
 &3x + 3(y - x) \\
 &= 3x + 3y - 3x, \dots \text{Distributive property} \\
 &= 3x - 3x + 3y, \dots \text{Commutative} \\
 &= 0 + 3y, \dots \text{Additive Inverse} \\
 &= 3y, \dots \text{Additive identity}
 \end{aligned}$$

Q.3 Give the name of property used in the following.

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|-------|--|-------------------------------------|
| (i) | $\sqrt{24} + 0 = \sqrt{24}$ | Additive Identity |
| (ii) | $-\frac{2}{3} \left[5 + \frac{7}{2} \right] = \left[-\frac{2}{3} \right] (5) + \left[-\frac{2}{3} \right] \left[\frac{7}{2} \right]$ | Distributive Property |
| (iii) | $\pi + (-\pi) = 0$ | Additive Inverse |
| (iv) | $\sqrt{3} \cdot \sqrt{3}$ is a real number. | Closure property <i>w.r.t</i> x . |
| (v) | $\left[-\frac{5}{8} \right] \left[-\frac{8}{5} \right] = 1$ | Multiplicative Inverse. |