Exercise 2.2

Q. 1: Identify the property used in the following.

(i) a + b = b +a (ii) (ab)c = a(bc)

(iii) 7 x 1 = 7 (iv) x > y or x = y or x < y

(v) ab = ba (vi) a + c = b + c ⇒ a = b

(vii) 5 + (-5) = 0 (viii) $7 \times \frac{1}{7} = 1$

(ix) a > b ⇒ ac > bc (c > 0)

Solution:

(i) Commutative w.r.t addition (ii) Associative w.r.t multiplication

(iii) Multiplicative Identity (iv) Trichotomy

(v) Commutative w.r.t multiplication (vi) Cancellation property of addition

(vii) Additive Inverse (viii) Multiplicative inverse

(ix) Multiplicative Property

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

$3x + 3(y - x)$

$= 3x + 3y - 3x,$ Distributive

$= 3x - 3x + 3y,$ commutative

$= 0 + 3y,$ additive inverse

$= 3y,$ additive identity

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

(i) $\sqrt{24} + 0 = \sqrt{24}$ Additive Identity

(ii) $-\frac{2}{3}\left(5 + \frac{7}{2}\right) = \left(-\frac{2}{3}\right)(5) + \left(-\frac{2}{3}\right)\binom{7}{2}$ Distributive Property

(iii) π + (-π) = 0 Additive Inverse

(iv) $\sqrt{3}.\sqrt{3}$ is a real number. Closure property

(v) $\left(-\frac{5}{8}\right)\left(-\frac{8}{5}\right) = 1$ Multiplicative Inverse