EXERCISE 5(D) PAGE NO: 40

1. Show that:
(i) division of whole numbers is not closed.
(ii) any whole number divided by 1, always gives the number itself.
(iii) every non-zero whole number divided by itself gives 1 (one).
(iv) zero divided by any non-zero number is zero only.
(v) a whole number divided by 0 is not defined.
For each part, given above, give two suitable examples.
Solution:
(i) Example:
5 and 8 are whole numbers, but 5 ÷ 8 is not a whole number
Therefore, closure property does not exist for division of whole numbers
(ii) Example:
2 ÷ 1 = 2, 18 ÷ 1 = 18, 129 ÷ 1 = 129
Hence, the given statement, any whole number divided by 1, always gives the number itself is true.
(iii) Example:
2 ÷ 2 = 1, 128 ÷ 128 = 1, 256 ÷ 256 = 1
Therefore, the given statement, every non-zero whole number divided by itself gives one is true
(iv) Example:
0 ÷ 138 = 0, 0 ÷ 2028 = 0, 0 ÷ 15140 = 0
Therefore, the given statement, zero divided by any non-zero number is zero only, is true
(v) Example:
7 ÷ 0 is not defined
16 ÷ 0 is not defined
Hence, the given statement, a whole number divided by zero is not defined

2. If x is a whole number such that x ÷ x = x, state the value of x.
Solution:
We know that, any number divided by 1, always gives the number itself
The value of x can be any number 1, 2, 3, 4, 5,6……and so on.

3. Fill in the blanks:
(i) 987 ÷ 1 = ……..
(ii) 0 ÷ 987 = ……..
(iii) 336 – (888 ÷ 888) = ……
(iv) (23 ÷ 23) – (437 ÷ 437) = ……..
Solution:

(i) 987 ÷ 1 = **987**
(ii) 0 ÷ 987 = **0**
(iii) 336 – (888 ÷ 888) = **335**
(iv) (23 ÷ 23) – (437 ÷ 437) = **0**

4. Which of the following statements are true?
(i) 12 ÷ (6 × 2) = (12 ÷ 6) × (12 ÷ 2)
(ii) a ÷ (b – c) = a / b – a / c
(iii) (a – b) ÷ c = a / c – b / c
(iv) (15 – 13) ÷ 8 = (15 ÷ 8) – (13 ÷ 8)
(v) 8 ÷ (15 – 13) = 8 / 15 – 8 / 13
Solution:
(i) 12 ÷ (6 × 2) = (12 ÷ 6) × (12 ÷ 2)
12 ÷ 12 = 2 × 6
1 ≠ 12
Hence, the statement is false
(ii) a ÷ (b – c) = a / b – a / c
a / (b – c) ≠ (ac – ab) / bc
Hence, the statement is false
(iii) (a – b) ÷ c – a / c – b / c
(a – b) / c = (a – b) / c
Hence, the statement is true
(iv) (15 – 13) ÷ 8 = (15 ÷ 8) – (13 ÷ 8)
15 – 13 / 8 = 15 – 13 / 8
2 / 8 = 2 / 8
Hence, the statement is true.
(v) 8 ÷ (15 – 13) = 8 / 15 – 8 / 13
8 / 2 = 104 – 120 / 15 (13)
4 ≠ (-16) / 15 (13)
Hence, the statement is false
(iii) and (iv) statements are true