**EXERCISE 2.5**

1. Express the following logarithm in terms of logax, logay and logaz.

+

1. Reduce each of the following into a single term

1. If log2 = 0.3010, log3 = 0.4771 and log5 = 0.6990, then find the values of the following without using table.

|  |  |
| --- | --- |
| 2 | 48 |
| 2 | 24 |
| 2 | 12 |
| 2 | 6 |
| 3 | 3 |
|  | 1 |

|  |  |
| --- | --- |
| 2 | 18 |
| 3 | 9 |
| 3 | 3 |
|  | 1 |

|  |  |
| --- | --- |
| 2 | 30 |
| 3 | 15 |
| 5 | 5 |
|  | 1 |

Q4. Prove the following:

Proof

**STEP-1: Supposing**

**STEP-2: Convert into Exponential Form**

|  |  |
| --- | --- |
| **Logarithmic Form** | **Exponential Form** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**STEP-3: Put the value of m**

Put the value of m = bp in equation (5)

**STEP-4: Compare equations**

Compare equation (7) with (6)

Proof

**STEP-1: Supposing**

**STEP-2: Convert into Exponential Form**

|  |  |
| --- | --- |
| **Logarithmic Form** | **Exponential Form** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**STEP-3: Put the value of m**

Put the value of a = cQ in equation (4)

**STEP-4: Compare equations**

Compare equation (7) with (6)

Proof

Put in equation (1)

When change Numerator into Denominator then base change its position with X

These both are opposite and cancel each other

Proof

When change Numerator into Denominator then base change its position with X

Q5. Verify the following:

Proof

Proof

Proof

|  |  |
| --- | --- |
| 7 | 343 |
| 7 | 49 |
| 7 | 7 |
|  | 1 |

Proof

|  |  |
| --- | --- |
| 2 | 216 |
| 2 | 108 |
| 2 | 54 |
| 3 | 27 |
| 3 | 9 |
| 3 | 3 |
|  | 1 |