Worksheet 2015-8ℰA-00007(4)

NO CALCULATOR MAY BE USED IN THIS EXERCISE!

(1) 24 is a common multiple of two numbers. The product of the two numbers is 32. Determine the two numbers?

$F_{24} = \{1; 2; 3; 4; 6; 8; 12; 24\}$

* 24 is a multiple of all the factors of 24
* The only two numbers with a product of 32 is 4 and 8. ($4 \times 8 = 32$)

$\therefore$ The two numbers are 4 and 8.

(2) The square root of a certain number is the same as double the square of 2. Find this number?

The square of 2 is 4. Double the square is $(2 \times 4) = 8$.

The squareroot of a number is thus 8.

$\therefore$ The number is 64, because $\sqrt{64} = 8$

(3) $2^3 . 3^2$ are the prime factors of M. What is the number value of M?

$\therefore \quad M = 2^3 . 3^2$

$= 8 \times 9$

$M = 72$

(4) Are the following statements true or false?

(a) All natural numbers ($\mathbb{N}$) are whole numbers ($\mathbb{N}_0$) as well?

True, because $\mathbb{N} = \{1; 2; 3; 4; \ldots\}$ and $\mathbb{N}_0 = \{0; 1; 2; 3; \ldots\}$

(b) The largest multiple of 12 is 144.

False, because the multiples of 12 go to infinity.

(c) The factors of 9 are 1 ; 3 and 9.

True

(d) 15 is a composite number.

True, because 15 has more than 2 factors
of $F_{15} = \{1; 3; 5; 15\}$

(e) The LCM of 12 and 15 is 3.

False, because 3 is not a multiple of 12 or
15. It is in fact the HCF of 12 and 15

(f) $((2)^2)^2 = (2)^4$

True, because $((2)^2)^2 = (4)^2 = 16$ and $(2)^4 = 16$

(5) (a) The temperature is 3°C. Through the day it rises with 7°C and after that it drops with 11°C. What is the current temperature?

Result = $3°C \overset{\text{rises}}{+} 7°C \overset{\text{drops}}{-} 11°C$

$= 10°C - 11°C$

$= -1°C$

(b) You owe your mother R40. You borrow another R35 before you repay R70 when receiving your pocket money. Did you repay all debts to your mother? If not, how much do you still owe her?

owe borrow Repay

$-R40 - R35 + R70$

$= -R75 + R70$

$= -R5$ ∴ you still owe her R5

(6) If $\sqrt{121 + x} = 13$, determine the value of x.

but $\sqrt{169} = 13$

$\therefore 121 + x = 169$

$x = 169 - 121$

$x = 48$