

Worksheet 2015-8 EA-00001(1)

NO CALCULATOR MAY BE USED IN THIS EXERCISE!

- (1) Write the first 6 multiples of 12.

$$M_{12} = \{12; 24; 36; 48; 60; 72\}$$

- (2) What is the smallest factor of 15?

1

- (3) Write all the factors of 36, smaller than 30.

$$F_{36} = 1; 2; 3; 4; 6; 9; 12; 18 \quad [36 \text{ not } < 30]$$

- (4) What is the smallest prime number?

2

- (5) Use the rules for divisibility and prove that 1 548 is divisible by 6.

* 1 548 is divisible by 2 because it ends on an even number $\rightarrow 8$

* 1 548 is divisible by 3, because $1 + 5 + 4 + 8 = 18$ and 18 is divisible by 3.

$\therefore$ 1 548 is divisible by 6, because it is divisible by 2 and 3.

- (6) Determine the prime factors of 18.

$$\therefore 18 = 2 \times 3^2$$

$$\begin{array}{r|l} 2 & 18 \\ 3 & 9 \\ 3 & 3 \\ & 1 \end{array}$$

- (7) Write the multiples of 6 which will also be factors of 24.

$$M_6 = \{6; 12; 18; 24; 30; \dots\}$$

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

$$\therefore \text{Answer : } 6; 12; 24$$

(8) Which whole number is not an element of the natural numbers?

0

(9) Determine the LCM of 3, 4 and 6.

$$M_3 = \{3; 6; 9; \underline{12}; 15; \dots\}$$

$$M_4 = \{4; 8; \underline{12}; 16; \dots\}$$

$$M_6 = \{6; \underline{12}; 18; 24; \dots\}$$

$$\therefore \text{LCM} = 12$$

(10) Determine the HCF of 15 and 20.

$$15 = 3 \times \underline{5}$$

$$20 = 2 \times 2 \times \underline{5}$$

} Prime factors

$$\therefore \text{HCF} = 5$$

(11) Calculate, without using a calculator. Show all calculations.

Order of operations!

(a) $\sqrt{25 - 9}$

$$= \sqrt{16}$$

$$= 4$$

(b) $3^2 - 2^2$

$$= 9 - 4$$

$$= 5$$

(c) $\sqrt[3]{8} - \underline{2 \times 0}$

$$= 2 - \underline{0}$$

$$= 2$$

(d) $(7 - 2)^2$

$$= (5)^2$$

$$= 25$$

(e) $\sqrt{576}$

$$= \sqrt{2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3}$$

$$= \sqrt{2^2 \times 2^2 \times 2^2 \times 3^2}$$

$$= 2 \times 2 \times 2 \times 3$$

$$= 24$$

$$\begin{array}{r|l} 2 & 576 \\ 2 & 288 \\ 2 & 144 \\ 2 & 72 \\ 2 & 36 \\ 2 & 18 \\ 3 & 9 \\ 3 & 3 \\ 3 & 1 \end{array}$$