WORKSHOP CALCULATION AND SCIENCE

UNITS, FACTORS AND FRACTIONS: Q&A

1. What are the two classifications of system of units?
   Ans: fundamental and derived

2. What are the fundamental units?
   Ans: Length, mass, time

3. What denotes letter m in MKS system?
   Ans: metre

4. How many millimetres are there in 1 inch?
   Ans: 1 inch = 25.4 mm

5. What is LCM of 12,18,6,36?
   Ans: by common division method: **36**
   > Write all the given numbers in a row,
   > find a least prime number which divides any of the given numbers
   > Note: Its not necessary the prime factor should be divisible by all the numbers, write down the indivisible numbers
   > Divide all the number by common factors until all the factors becomes 1

2	12,	18,	6,	36
2	6,	9,	3,	18
3	3,	9,	3,	9
3	1,	3,	1,	3
	1,	1,	1,	1

   Multiply all the multiply numbers 2 x 2 x 3 x 3 = **36**

6. What is the HCF of 18, 42, 24?
   Ans: by common division method: **6**
   > Write all the given numbers in a row,
   > Find a common factor which is divisible by all the given number
   > Divide all the numbers, and STOP when all the number becomes indivisible by a common
   factor

2	18,	42,	24
3	9,	21,	12
	3,	7,	4

   Multiply the common factors : 2 x 3 = **6**

7. What is the improper fraction for the given mixed fraction?
   A : 52/7 **B** : 7/52 **C** : 28/7 **D** : 7/28
   Ans: 52/7
   > A **fraction** where the numerator (the top number) is greater than or equal to the denominator (the bottom number). So, it is usually "top-heavy"

8. Convert decimal 0.000659 to fraction?

Ans: Given decimal has six valid digits after pointer, thus multiply and divide by 1000000

$$0.000659 \times \frac{1000000}{1000000} = \frac{659}{1000000}$$

9. Simplify: (3/4) +(2/5) -(5/20)

Ans: $= \dfrac{3}{4} + \dfrac{2}{5} - \dfrac{5}{20}$

$= \dfrac{(3 \times 5)+(4 \times 2)}{20} - \dfrac{5}{20}$ *(By BODMAS rule)*

$= \dfrac{15+8}{20} - \dfrac{5}{20}$

$= \dfrac{23}{20} - \dfrac{5}{20}$

$= \dfrac{18}{20}$

$= \dfrac{9}{10}$

10. Divide: 20/31 ÷ 15/62

Ans: Given equation can be written as $\dfrac{\frac{20}{31}}{\frac{15}{62}} = \dfrac{20}{31} \times \dfrac{62}{15} = \dfrac{1240}{465} = \dfrac{8}{3} = \mathbf{2\dfrac{2}{3}}$

11. What is the product of 0.003 x 0.5?

Ans: Ignore the decimal points and multiply as whole numbers.
(3 x 5 = 15)
Find the total number of digits to the right of the decimal point.
(0.003 has three digits after the pointer, 0.5 has one digit, total four digits)
Insert the decimal point in the answer such that the number of digits to the right of the decimal point = **0.0015**

12. Simplify: - (17.49 x 5.2) / 6.5

Ans: Using calculator = **13.99**

13. What is the length of each part if a copper wire of 225-metre-long is cut into 900 equal parts?

Ans: $\dfrac{total\ length\ of\ the\ wire}{total\ number\ of\ equal\ parts\ to\ be\ cut} = \dfrac{225\ m}{900} = \mathbf{0.25m}$