Question 2: In a college of 300 students, every student reads 5 newspapers, and every newspaper is read by 60 students. The number of newspapers is _____.

10. A, B and C are subsets of Universal Set U. If $A = \{2, 4, 6, 8, 12, 20\}$ $B = \{3, 6, 9, 12, 15\}$, $C = \{5, 10, 15, 20\}$ and U is the set of all whole numbers, draw a Venn diagram showing the relation of U, A, B and C.

24. Out of 100 students; 15 passed in English, 12 passed in Mathematics, 8 in Science, 6 in English and Mathematics, 7 in Mathematics and Science; 4 in English and Science; 4 in all the three. Find how many passed

(i) in English and Mathematics but not in Science

(ii) in Mathematics and Science but not in English

(iii) in Mathematics only

(iv) in more than one subject only

Example 10 Find the domain of the function f given by $f(x) = \dfrac{1}{\sqrt{[x]^2 - [x] - 6}}$

26. Range of $f(x) = \dfrac{1}{1-2\cos x}$ is

(A) $\left[\dfrac{1}{3}, 1\right]$

(B) $\left[-1, \dfrac{1}{3}\right]$

(C) $(-\infty, -1] \cup \left[\dfrac{1}{3}, \infty\right)$

(D) $\left[-\dfrac{1}{3}, 1\right]$

Example 19 The value of $\cos\frac{\pi}{5}\cos\frac{2\pi}{5}\cos\frac{4\pi}{5}\cos\frac{8\pi}{5}$ is

(A) $\frac{1}{16}$ (B) 0 (C) $\frac{-1}{8}$ (D) $\frac{-1}{16}$

Example 20 If $3 \tan(\theta - 15°) = \tan(\theta + 15°)$, $0° < \theta < 90°$, then $\theta =$ _____

Question 6: If f (x) = cos (log x), then find the value of f (x) * f (4) - [1 / 2] * [f (x / 4) + f (4x)].