Concept Check

Determine whether each of the following is correct or not.

1. 2 is a prime number. _____
2. For any two numbers, their H.C.F. must be less than their L.C.M. _____
3. 32 can be written as a product of its prime factors. _____
4. 25 733 is divisible by 9. _____
5. If the last 2 digits of a number is 32, then the number is divisible by 4. _____
6. $4 \div 2 \times 32 = 4 \div (2 \times 32)$ _____

Conventional Questions

Level 0

1. Find the H.C.F. of each of the following pairs of numbers.

   (a) $2 \times 2 \times 3$ and $2 \times 3 \times 5$ **(b)** $2 \times 3 \times 3 \times 5$ and $2 \times 2 \times 3 \times 3 \times 3 \times 7$

2. Find the L.C.M. of each of the following pairs of numbers.

   (a) $2 \times 3 \times 3$ and $3 \times 3 \times 5$ **(b)** $2 \times 5 \times 5 \times 5$ and $2 \times 3 \times 3 \times 3 \times 11$

3. In each of the following, put a tick into the box if the number is divisible by 4, 6, 8 or 9.

		Divisible by			
	Number	4	6	8	9
(a)	328				
(b)	810				
(c)	1276				
(d)	3234				

4. Find the value of each of the following expressions.

(a) $(12 + 3) \times 4$

(b) $(31 - 12) \times 3 + 5$

(c) $(16 + 2) \div 3 - 2$

(d) $48 \div [(2 + 4) \times 2]$

(e) $[45 - (35 - 15)] \times 3$

(f) $120 \div [(5 \times 4) \div 2]$

Level 1

5. Find the H.C.F. of each of the following sets of numbers.

(a) 12 and 32

(b) 15 and 45

(c) 9 and 33

(d) 28 and 72

(e) 2, 4 and 8

(f) 10, 25 and 55

6. Find the L.C.M. of each of the following sets of numbers.

(a) 24 and 96

(b) 15 and 18

(c) 1 and 100

(d) 27 and 45

(e) 3, 9 and 18

(f) 5, 15 and 20

OPEN **7.** Suggest two numbers which is divisible by both 4 and 9.

8. If 124▲ is a number which is divisible by 8, find all the possible values of ▲.

9. Find the value of each of the following expressions.

(a) $\frac{3}{4}+\frac{5}{8}-\frac{7}{16}$

(b) $\frac{2}{3}\times\frac{6}{8}\div\frac{16}{27}$

(c) $2\frac{2}{5}\div\frac{10}{24}\times 2\frac{7}{9}$

(d) $\left(\frac{1}{4}+\frac{5}{6}\right)\times 1\frac{1}{5}$

(e) $\left(1\frac{3}{10}-\frac{2}{5}\right)\div 3\frac{3}{4}$

(f) $2\frac{8}{9}\div\frac{3}{4}+2\frac{2}{3}$

10. Find the value of each of the following expressions.

(a) $1.2+1.5\times 0.04$

(b) $0.72\div 0.8-0.15$

(c) $2.4\times(4.55+2.25)$

(d) $4.2\div(3.13-1.03)$

(c) $4.5 \div 0.9 \times 2.5$

(f) $[(1.8 - 0.6) \times 0.5] \div 0.8$

Level 2

11. Find the H.C.F. of each of the following sets of numbers.

(a) 48, 72 and 216

(b) 60, 84 and 264

12. Find the L.C.M. of each of the following sets of numbers.

(a) 12, 48 and 60

(b) 54, 72 and 108

13. Find the value of each of the following expressions.

(a) $120 - [15 + (33 - 14 \times 2)]$

(b) $\left(\frac{1}{2} + \frac{1}{6}\right) \times \left(2\frac{2}{5} - 1\frac{3}{10}\right)$

(c) $4\frac{1}{2} \div \left(1\frac{1}{2} \times 3\frac{1}{4} - 1\frac{3}{4}\right)$

(d) $\left(8.2 - 3\frac{1}{5} + 1\frac{3}{4} \times \frac{2}{7}\right) \times 0.5$

14. If 63▲★ is a number which is divisible by 9 and 10, find all the possible values of ▲ and ★.

OPEN **15.** Suggest a 4-digit number which is divisible by 6, 8 and 9.

16. There are 32 blue pens, 56 red pens and 80 black pens. Peter wants to divide the pens into some boxes so that each box has the same number of blue pens, same number of red pens and same number of black pens. Find the largest possible number of boxes.

17. In a competition, the times required for A, B and C to complete a cycle is 10 minutes, 16 minutes and 24 minutes. If they all start at the same time at the starting point, at least how many minutes later all of them will meet again?

18. The costs of each kg of powder *A* and powder *B* are \$12.5 and \$15.2 respectively. Jane buys 2.2 kg of powder *A* and 3.5 kg of powder *B* and she pays \$100. What will be the change?

Multiple-choice Questions

Level 1

1. Which of the following numbers is divisible by 9?

A. 1104
B. 2583
C. 2921
D. 3093

2. Which of the following is NOT a prime number?

A. 13
B. 23
C. 43
D. 63

3. Which of the following is NOT a prime factor of 900?

A. 2
B. 3
C. 5
D. 15

4. The H.C.F. of 50 and 150 is

A. 25.
B. 50.
C. 150.
D. 300.

5. The L.C.M. of 18 and 48 is

A. 6.
B. 72.
C. 144.
D. 288.

6. $40 - [(2 + 5) \times (7 - 5)] =$

A. 14.
B. 16.
C. 22.
D. 26.

Level 2

7. If the L.C.M. of a number and 81 is 162, which of the following must NOT be that number?

A. 2
B. 6
C. 18
D. 27

8. If the H.C.F. of a number and 64 is 16, which of the following must NOT be that number?

A. 16
B. 48
C. 80
D. 128

9. Which of the following pairs of numbers has the largest L.C.M.?

A. 4 and 16
B. 12 and 16
C. 15 and 35
D. 9 and 17

10. If X and Y are two distinct prime numbers, which of the following must be true?

I. L.C.M. of X and $Y = X \times Y$
II. H.C.F. of X and $Y = 1$
III. $X + Y$ is an even number.

A. I and II only
B. I and III only
C. II and III only
D. I, II and III

11. If 13▲4 is a number that is divisible by 8, find the number of possible value(s) of ▲.

A. 0
B. 1
C. 2
D. 3

12. Calculate $\frac{1}{2} + \left(\frac{1}{4} + \frac{1}{8}\right) \times \frac{1}{4} - \frac{1}{32}$.

A. $\frac{1}{16}$
B. $\frac{9}{16}$
C. $\frac{19}{32}$
D. $\frac{5}{8}$

Cross-topics Challenge

If A and B are prime numbers and their L.C.M. is 35, find the value of $\left(\frac{1}{A}+\frac{1}{B}\right)\times\frac{1}{2}$.

Common Exam Questions

1. If a number is divided by 5, 6 and 8 respectively, the remainders are all 2. Find the smallest possible value of the number.

2. The L.C.M. of 18 and a prime number P is 1602. Find the value of P.

Hint

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3. Find the sum of all prime factors of 1260.