

1

(a) Write 228 as a product of its prime factors.

..... [2]

(b) $228^2 = 51\,984$

Write 51 984 as a product of its prime factors.

..... [1]

2 [2025-M/J-01-13]

Write down

(a) the reciprocal of 7

..... [1]

(b) an irrational number.

..... [1]

3 [2025-M/J-11-13]

A green light flashes every 12 minutes.

A red light flashes every 45 minutes.

The two lights flash together at 9 am.

Find the next time when the two lights will flash together.

..... [3]

4 [2025-M/J-02-22]

(a) Write eighteen thousand and twelve in figures.

..... [1]

(b) Write down a prime number between 20 and 30.

..... [1]

(c) Find the reciprocal of $\frac{1}{9}$.

..... [1]

(b)
$$A = 2^{x-1} \times 3^{2y} \times 7$$
$$B = 2^{x+3} \times 3^y \times 5$$

The numbers A and B are written as the product of their prime factors, where x and y are positive integers.

- (i) Find the highest common factor (HCF) of A and B in terms of x and y .

..... [2]

- (ii) Find the lowest common multiple (LCM) of A and B in terms of x and y .

..... [2]

(b) $M = 2^{2x} \times 3^4 \times 5 \times 7$
 $N = 2^3 \times 3^{x-y} \times 5^2$

The lowest common multiple (LCM) of M and N is $2^8 \times 3^6 \times 5^2 \times 7$.

(i) Find the value of x and the value of y .

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots [2]$$

(ii) Find the largest square number that is a factor of M .

$$\dots\dots\dots [1]$$

(iii) Find the highest common factor (HCF) of M and N .
 Give your answer as a product of its prime factors.

$$\dots\dots\dots [1]$$

(a) Write down the value of the 5 in the number 253 624.

$$\dots\dots\dots [1]$$

8 [2022-M/J-06-11]

Write down

(a) a prime number between 10 and 15,

..... [1]

(b) an irrational number between 10 and 15.

..... [1]

9 [2021-M/J-10-12]

(a) Write 270 as the product of its prime factors.

..... [2]

(b) Find the highest common factor (HCF) of 270 and 225.

..... [2]

(a) Write 108 as the product of its prime factors.

..... [2]

(b) Find the lowest common multiple (LCM) of 108 and 180.

..... [2]