

SELECTION

6 MATHS

TERM-II

5 in 1

Chapter-1. NUMBERS

Exercise 1.1

1. Fill in the blanks

- (i) The number of prime numbers between 11 and 60 is _____.

Solution : 12 (13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59)

- (ii) The numbers 29 and _____ are twin primes.

Solution : 31

- (iii) 3753 is divisible by 9 and hence divisible by _____

Solution : 3

- (iv) The number of distinct prime factors of the smallest 4 digit number is _____.

Solution : 2 ($1000 = 2^3 \times 5^3$)

- (v) The sum of distinct prime factors of 30 is _____.

Solution : 10 ($30 = 2 \times 3 \times 5 \Rightarrow 2 + 3 + 5 = 10$)

2. Say True or False.

- (i) The sum of any number of odd numbers is always even.

Solution : False

- (ii) Every natural number is either prime or composite.

Solution : False

- (iii) If a number is divisible by 6, then it must be divisible by 3.

Solution : True

- (iv) 16254 is divisible by each of 2, 3, 6 and 9.

Solution : True

- (v) The number of distinct prime factors of 105 is 3.

Solution : True

SELECTION 6 MATHS**2****TERM-II 5 in 1**

3. Write the smallest and the biggest two digit prime number.

Solution : smallest $\rightarrow 11$; biggest $\rightarrow 97$

4. Write the smallest and the biggest three digit composite number.

Solution : smallest $\rightarrow 100$; biggest $\rightarrow 999$

5. The sum of any three odd natural numbers is odd. Justify this statement with an example.

Solution : True

Example : $3 + 7 + 9 = 19 \rightarrow$ odd number

6. The digits of the prime number 13 can be reversed to get another prime number 31. Find if any such pairs exist upto 100.

Solution : (17, 71), (37, 73) and (79, 97)

7. Your friend says that every odd number is prime. Give an example to prove him/her wrong.

Solution : Wrong. Since 9 is odd number but not prime.

8. Each of the composite numbers has atleast three factors. Justify this statement with an example.

Solution : True. 4 is the smallest composite number which has three factors - 1, 2 & 4

9. Find the dates of any month in a calendar which are divisible by both 2 and 3.

Solution : 6, 12, 18, 24, 30 (Except February month)

10. I am a two digit prime number and the sum of my digits is 10. I am also one of the factors of 57. Who am I?

Solution : I am 19. Since $1 + 9 = 10$ and I am one of the factors of 57

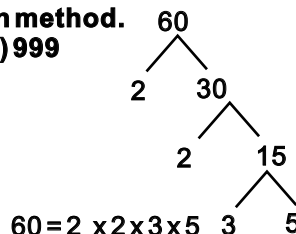
11. Find the prime factorisation of each number by factor tree method and division method.

a) 60 b) 128 c) 144 d) 198 e) 420 f) 999

Solution :

a) 60 = $2 \times 2 \times 3 \times 5$

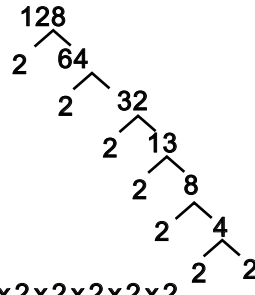
2	60
2	30
3	15
5	5
1	



SELECTION 6 MATHS**3****TERM-II 5 in 1**

b) $128 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

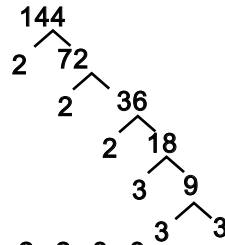
$$\begin{array}{r}
 2 \overline{)128} \\
 2 \overline{)64} \\
 2 \overline{)32} \\
 2 \overline{)16} \\
 2 \overline{)8} \\
 2 \overline{)4} \\
 2 \overline{)2} \\
 1
 \end{array}$$



$128 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

c) $144 = 2 \times 2 \times 2 \times 2 \times 3 \times 3$

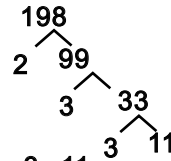
$$\begin{array}{r}
 2 \overline{)144} \\
 2 \overline{)72} \\
 2 \overline{)36} \\
 2 \overline{)18} \\
 3 \overline{)9} \\
 3 \overline{)3} \\
 1
 \end{array}$$



$144 = 2 \times 2 \times 2 \times 2 \times 3 \times 3$

d) $198 = 2 \times 3 \times 3 \times 11$

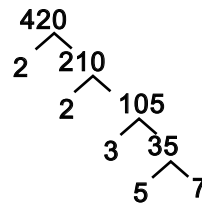
$$\begin{array}{r}
 2 \overline{)198} \\
 3 \overline{)99} \\
 3 \overline{)33} \\
 11 \overline{)11} \\
 1
 \end{array}$$



$198 = 2 \times 3 \times 3 \times 11$

e) $420 = 2 \times 2 \times 3 \times 5 \times 7$

$$\begin{array}{r}
 2 \overline{)420} \\
 2 \overline{)210} \\
 3 \overline{)105} \\
 5 \overline{)35} \\
 7 \overline{)7} \\
 1
 \end{array}$$



$420 = 2 \times 2 \times 3 \times 5 \times 7$

SELECTION 6 MATHS**4****TERM-II 5 in 1**f) $999 = 3 \times 3 \times 3 \times 37$

$$\begin{array}{r}
 3 \overline{)999} \\
 \underline{3} \\
 3 \overline{)333} \\
 \underline{3} \\
 3 \overline{)111} \\
 \underline{3} \\
 37 \overline{)37} \\
 \underline{37} \\
 1
 \end{array}$$

$$\begin{array}{c}
 999 \\
 \swarrow \searrow \\
 3 \quad 333 \\
 \quad \swarrow \searrow \\
 \quad 3 \quad 111 \\
 \quad \quad \swarrow \searrow \\
 \quad \quad 3 \quad 37
 \end{array}$$

$$999 = 3 \times 3 \times 3 \times 37$$

12. If there are 143 math books to be arranged in equal numbers in all the stacks, then find the number of books in each stack and also the number of stacks.

Solution: $143 = 13 \times 11$ (or) 11×13

Objective Type Questions

13. The difference between two successive odd numbers is

a)1 b)2 c)3 d)0 **Solution:** b)2

14. The only even prime number is

a)4 b)6 c)2 d)0 **Solution:** c)2

15. Which of the following numbers is not a prime?

a)53 b)92 c)97 d)71 **Solution:** b)92

16. The sum of the factors of 27 is

a)28 b)37 c)40 d)31 **Solution:** c)40

Hint: 27 factors = 1, 3, 9, 27; $1+3+9+27=40$

17. The factors of a number are 1, 2, 4, 5, 8, 10, 16, 20, 40 and 80. What is the number?

a)80 b)100 c)128 d)160 **Solution:** a)80

18. The prime factorisation of 60 is $2 \times 2 \times 3 \times 5$. Any other number which has the same prime factorisation as 60 is

a)30 b)120 c)90 d)impossible

Solution: d)impossible

19. If the number 6354×97 is divisible by 9, then the value of is

a)2 b)4 c)6 d)7 **Solution:** a)2

20. The number 87846 is divisible by

a)2 only b)3 only
c)11 only d)all of these **Solution:** d)all of these

SELECTION 6 MATHS**5****TERM-II 5 in 1****Try these****(i) Observe and complete:**

$1+3=?$

$5+11=?$

$21+47=?$

$\dots\dots+ \dots\dots=?$

From this observation,
we conclude that "the sum
of any two odd numbers is
always an _____"

Solution : even number**(ii) Observe and complete:**

$5 \times 3=?$

$7 \times 9=?$

$11 \times 13=?$

$\dots \times \dots =?$

From this observation,
we conclude that "the
product of any two odd
numbers is always an
_____"

Solution : odd number

Justify the following statements with appropriate examples:

(iii) The sum of an odd and an even number is always an odd number.

(iv) The product of an odd and an even number is always an even number.

(v) The product of any three odd numbers is always an odd number.

Examples :

(i) $3+4=7$

(ii) $3 \times 4=12$

(iii) $3 \times 5 \times 7=105$

Try these.**(i) Say True or False.****a) The smallest odd natural number is 1.****b) 2 is the smallest even whole number.****c) $12345+5063$ is an odd number.****d) Every number is a factor of itself.****e) A number which is a multiple of 6 is also a multiple of 2 and 3.****Solution :****a) True****b) True****c) False****d) True (Except 0)****e) True****(ii) Is 7, a factor of 27?****Solution : Number 7 is not a factor of 27**

SELECTION 6 MATHS 6 TERM-II 5 in 1**(iii) Is 12, a factor or a multiple of 12?****Solution :** Yes, 12 is a factor or a multiple of 12**(iv) Is 30, a factor or a multiple of 10?****Solution :** Number 30 is not a factor of 12. But multiple of 10.**(v) Which of the following numbers has 3 as a factor?**

a) 8 b) 10 c) 12 d) 14

Solution : c) 12**(vi) The factors of 24 are 1, 2, 3, $\diamond$, 6, $\diamond$, 12, and 24. Find the missing ones.****Solution :** missing ones are 4 and 8**(vii) Look at the following numbers carefully and find the missing multiples.**

9	4		8	27		16	45		24
---	---	--	---	----	--	----	----	--	----

Solution :

9	4	18	8	27	12	36	16	45	20	54	24
---	---	----	---	----	----	----	----	----	----	----	----

(Multiples of 9 and 4)

Activity.**(i) List out the prime and composite numbers represented by the dates in the month of October.****(ii) Generate a few composite numbers by product of two or more natural numbers.****(iii) Classify the numbers 34, 57, 71, 93, 101, 111 and 291 as prime or composite.****Solution :**

(i) Prime numbers : 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31
 Composite numbers : 4, 6, 8, 9, 10, 12, 14, 15, 16, 18, 20, 21, 22, 24, 25, 26, 27, 30

(ii) $2 \times 5 = 10$, $3 \times 4 = 12$, $3 \times 5 = 15$, $2 \times 3 \times 5 = 30$

(iii) Prime numbers : 71, 101
 Composite numbers : 34, 57, 93, 111, 291

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

Try these.

(i) Express 68 and 128 as the sum of two consecutive primes.

(ii) Express 79 and 104 as the sum of any three odd primes.

Solution :

$$(i) \quad 68 = 31 + 37$$

$$128 = 61 + 67$$

$$(ii) \quad 79 = 19 + 29 + 31$$

104 ; we can't write 104 as sum of three odd prime numbers. since sum of three odd numbers is always odd.

Try these.

(i) Are the leap years divisible by 2?

(ii) Is the first 4 digit number divisible by 3..

(iii) Is your date of birth (DDMMYYYY) divisible by 3..

(iv) Check whether the sum of 5 consecutive numbers is divisible by 5.

(v) Identify the numbers in the sequence 2000, 2006, 2010, 2015, 2019, 2025 that are divisible by both 2 and 5.

Solution :

(i) Yes, leap years are divisible by 2.

(ii) First four digit number is 1000 not divisible by 3

(iii) Not divisible by 3.

Ex. 05-11-2008 = $0+5+1+1+2+0+0+8 = 17$ is not divisible by 3

(iv) $3+4+5+6+7 = 25$ is divisible by 5

(v) Numbers divisible by 2 and 5 are 2000, 2010.

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The teacher may ask all the students to check mentally for divisibility by 2, 3, 4, 5, 6, 8, 9, 10 and 11. If divisible, let them write ..yes.., otherwise ..no..(the first one is done for you..).

Number	+2	+3	+4	+5	+6	+8	+9	+10	+11
68	yes	no	yes	no	no	no	no	no	no
99	no	yes	no	no	no	no	yes	no	yes
300	yes	yes	yes	yes	yes	no	no	yes	no
495	no	yes	no	yes	no	no	yes	no	no
1260	yes	yes	yes	yes	yes	no	yes	yes	no
7920	yes	yes	yes	yes	yes	yes	yes	yes	yes
11880	yes	yes	yes	yes	yes	yes	yes	yes	yes
13650	yes	yes	no	yes	yes	no	no	yes	no
600600	yes	yes	yes	yes	yes	yes	no	yes	yes
15081947	no	no	no	no	no	no	no	no	no

Exercise 1.2**1. Fill in the blanks.**

Fill in the blanks

(i) The HCF of 45 and 75 is _____.

Solution : 15

(ii) The HCF of two successive even numbers is _____.

Solution : 2

(iii) If the LCM of 3 and 9 is 9, then their HCF is _____.

Solution : 3

(iv) The LCM of 26, 39 and 52 is _____.

Solution : 156

(v) The least number that should be added to 57 so that the sum is exactly divisible by 2, 3, 4 and 5 is _____.

Solution : 3**Hint : Lcm of 2, 3, 4 and 5 is 60**

$$\therefore 57 + 3 = 60$$

2. Say True or False

(i) The numbers 57 and 69 are co-primes.

Solution : False. Since 57 and 69 have 3 as common factor

(ii) The HCF of 17 and 18 is 1.

Solution : True

(iii) The LCM of two successive numbers is the product of the numbers.

Solution : True

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(iv) The LCM of two co-primes is the sum of the numbers.

Solution : False. 3 and 4 are co-prime their LCM=12**But. sum = 3 + 4 = 7**

(v) The HCF of two numbers is always a factor of their LCM.

Solution : True**3. Find the HCF of each set of numbers using prime factorisation method.****(i) 18, 24 (ii) 51, 85 (iii) 61, 76 (iv) 84, 120 (v) 27, 45, 81****(vi) 45, 55, 95****Solution :****(i) 18, 24**

$$\begin{array}{r|l}
 3 & 18 \\
 \hline
 3 & 9 \\
 \hline
 3 & 3 \\
 \hline
 1 &
 \end{array}
 \qquad
 \begin{array}{r|l}
 2 & 24 \\
 \hline
 2 & 12 \\
 \hline
 2 & 6 \\
 \hline
 3 & 3 \\
 \hline
 1 &
 \end{array}$$

$$18 = 2 \times 3 \times 3$$

$$24 = 2 \times 2 \times 2 \times 3$$

$$\text{HCF} = 2 \times 3 = 6$$

(ii) 51, 85

$$\begin{array}{r|l}
 3 & 51 \\
 \hline
 17 & 17 \\
 \hline
 1 &
 \end{array}
 \qquad
 \begin{array}{r|l}
 5 & 85 \\
 \hline
 17 & 17 \\
 \hline
 1 &
 \end{array}$$

$$51 = 3 \times 17$$

$$85 = 5 \times 17$$

$$\text{HCF} = 17$$

(iii) 61, 76

$$\begin{array}{r|l}
 2 & 76 \\
 \hline
 2 & 38 \\
 \hline
 19 & 19 \\
 \hline
 1 &
 \end{array}$$

$$61 = 61$$

$$76 = 2 \times 2 \times 19$$

$$\text{HCF} = 1$$

(iv) 84, 120

$$\begin{array}{r|l}
 2 & 84 \\
 \hline
 2 & 42 \\
 \hline
 3 & 21 \\
 \hline
 7 & 7 \\
 \hline
 1 &
 \end{array}
 \qquad
 \begin{array}{r|l}
 2 & 120 \\
 \hline
 2 & 60 \\
 \hline
 2 & 30 \\
 \hline
 3 & 15 \\
 \hline
 5 & 5 \\
 \hline
 1 &
 \end{array}$$

$$84 = 2 \times 2 \times 3 \times 7$$

$$120 = 2 \times 2 \times 2 \times 3 \times 5$$

$$\text{HCF} = 2 \times 2 \times 3 = 12$$

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TERM-II 5 in 1

(v) 27, 45, 81

$$\begin{array}{r} 3 \overline{)27} \\ 3 \overline{)9} \\ 3 \overline{)3} \\ 1 \end{array}$$

$$\begin{array}{r} 3 \overline{)45} \\ 3 \overline{)15} \\ 5 \overline{)5} \\ 1 \end{array}$$

$$\begin{array}{r} 3 \overline{)81} \\ 3 \overline{)27} \\ 3 \overline{)9} \\ 3 \overline{)3} \\ 1 \end{array}$$

$$27 = \textcircled{3} \times \textcircled{3} \times 3$$

$$45 = \textcircled{3} \times \textcircled{3} \times 5$$

$$81 = \textcircled{3} \times \textcircled{3} \times 3 \times 3$$

$$\text{HCF} = 3 \times 3 = 6$$

(vi) 45, 55, 95

$$\begin{array}{r} 3 \overline{)45} \\ 3 \overline{)15} \\ 5 \overline{)5} \\ 1 \end{array}$$

$$\begin{array}{r} 5 \overline{)55} \\ 11 \overline{)11} \\ 1 \end{array}$$

$$\begin{array}{r} 5 \overline{)95} \\ 19 \overline{)19} \\ 1 \end{array}$$

$$45 = 3 \times 3 \times \textcircled{5}$$

$$55 = \textcircled{5} \times 11$$

$$95 = \textcircled{5} \times 19$$

$$\text{HCF} = 5$$

4. Find the LCM of each set of numbers using prime factorisation method.

(i) 6, 9 (ii) 8, 12 (iii) 10, 15 (iv) 14, 42 (v) 30, 40, 60

(vi) 15, 25, 75

Solution:

(i) 6, 9

$$6 = 2 \times \textcircled{3}$$

$$9 = \textcircled{3} \times 3$$

$$\text{LCM} = (3) \times (2 \times 3) = 3 \times 6 = 18$$

(ii) 8, 12

$$\begin{array}{r} 2 \overline{)8} \\ 2 \overline{)4} \\ 2 \overline{)2} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{)12} \\ 2 \overline{)6} \\ 3 \overline{)3} \\ 1 \end{array}$$

$$8 = \textcircled{2} \times \textcircled{2} \times 2$$

$$12 = \textcircled{2} \times \textcircled{2} \times 3$$

$$\text{LCM} = (2 \times 2) \times (2 \times 3) = 4 \times 6 = 24$$

(iii) 10, 15

$$\begin{array}{r} 2 \overline{)10} \\ 5 \overline{)5} \\ 1 \end{array}$$

$$\begin{array}{r} 3 \overline{)15} \\ 5 \overline{)5} \\ 1 \end{array}$$

$$10 = 2 \times \textcircled{5}$$

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

$$\text{LCM} = (5) \times (2 \times 3) = 5 \times 6 = 30$$

SELECTION 6 MATHS

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TERM-II 5 in 1

(iv) 14, 42

$$\begin{array}{r} 2 \overline{)14} \\ 7 \overline{)7} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{)42} \\ 3 \overline{)21} \\ 7 \overline{)7} \\ 1 \end{array}$$

$$14 = 2 \times 7$$

$$42 = 2 \times 3 \times 7 \quad \text{LCM} = (2 \times 7) \times (3) = 14 \times 3 = 42$$

(v) 30, 40, 60

$$\begin{array}{r} 2 \overline{)30} \\ 3 \overline{)15} \\ 5 \overline{)5} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{)40} \\ 2 \overline{)20} \\ 2 \overline{)10} \\ 5 \overline{)5} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{)60} \\ 2 \overline{)30} \\ 3 \overline{)15} \\ 5 \overline{)5} \\ 1 \end{array}$$

$$30 = 2 \times 3 \times 5$$

$$40 = 2 \times 2 \times 2 \times 5$$

$$60 = 2 \times 2 \times 3 \times 5$$

$$\text{LCM} = (2 \times 5) \times (2 \times 2 \times 3) = 10 \times 12 = 120$$

(vi) 15, 25, 75

$$\begin{array}{r} 3 \overline{)15} \\ 5 \overline{)5} \\ 1 \end{array}$$

$$\begin{array}{r} 5 \overline{)25} \\ 5 \overline{)5} \\ 1 \end{array}$$

$$\begin{array}{r} 3 \overline{)75} \\ 5 \overline{)25} \\ 5 \overline{)5} \\ 1 \end{array}$$

$$15 = 3 \times 5$$

$$25 = 5 \times 5$$

$$75 = 3 \times 5 \times 5$$

$$\text{LCM} = (5) \times (5 \times 3) = 5 \times 15 = 75$$

5. Find the HCF and the LCM of the numbers 154, 198 and 286.

Solution:

$$\begin{array}{r} 2 \overline{)154, 198, 286} \\ 11 \overline{)77, 99, 143} \\ 3 \overline{)7, 9, 13} \\ 3 \overline{)7, 13, 13} \\ 7 \overline{)7, 1, 13} \\ 13 \overline{)1, 1, 13} \\ 1, 1, 1 \end{array}$$

$$\text{HCF} = 2 \times 11 = 22$$

$$\text{LCM} = 2 \times 11 \times 3 \times 3 \times 7 \times 13 = 18018$$

SELECTION 6 MATHS **12** **TERM-II 5 in 1**

6. What is the greatest possible volume of a vessel that can be used to measure exactly the volume of milk in cans (in full capacity) of 80 litres, 100 litres and 120 litres?

Solution :

Greatest possible volume = HCF of 80, 100, 120

$$\begin{array}{r|l} 2 & 80, 100, 120 \\ 2 & 40, 50, 60 \\ 5 & 20, 25, 30 \\ \hline & 4, 5, 6 \end{array}$$

$$= 2 \times 2 \times 5 = 20 \text{ litres}$$

7. The traffic lights at three different road junctions change after every 40 seconds, 60 seconds and 72 seconds respectively. If they changed simultaneously together at 8 a.m at the junctions, at what time will they simultaneously change together again?

Solution :

Time of change together = LCM of 40, 60, 72

$$\begin{array}{r|l} 2 & 40, 60, 72 \\ 2 & 20, 30, 36 \\ 2 & 10, 15, 18 \\ 3 & 5, 15, 9 \\ 3 & 5, 5, 3 \\ 5 & 5, 5, 1 \\ \hline & 1, 1, 1 \end{array}$$

$$= 2 \times 2 \times 2 \times 3 \times 3 \times 5 = 360 \text{ Seconds} = 6 \text{ minutes}$$

Therefore they change together again at 8.06 am.

8. The LCM of two numbers is 210 and their HCF is 14. How many such pairs are possible?

Solution :

Two pairs = (42, 72) & (14, 210)

9. The LCM of two numbers is 6 times their HCF. If the HCF is 12 and one of the numbers is 36, then find the other number.

Solution : HCF = 12

$$\text{LCM} = 6 \text{ times HCF} = 6 \times 12 = 72$$

$$\text{Other number} = \frac{\text{HCF} \times \text{LCM}}{\text{One number}} = \frac{12 \times 72}{36} = 24$$

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Objective Type Questions

10. Which of the following pairs is co-prime?

- a) 51, 63 b) 52, 91 c) 71, 81 d) 81, 99

Solution : c) 71, 81

11. The greatest 4 digit number which is exactly divisible by 8, 9 and 12 is

- a) 9999 b) 9996 c) 9696 d) 9936

Solution : d) 9936

Hint: LCM OF 8, 9, 12 = $2 \times 2 \times 2 \times 3 \times 3 = 72$

2	8, 9, 12		138
2	4, 9, 6	72	9999
2	2, 9, 3		72
3	1, 9, 3		279
3	1, 3, 1		216
	1, 1, 1		639
			576
			63

$$\therefore 999 - 63 = 9936$$

12. The HCF of two numbers is 2 and their LCM is 154. If the difference between the numbers is 8, then the sum is

- a) 26 b) 36 c) 46 d) 56

Solution : b) 36

Hint: HCF $\times$ LCM = $2 \times 154 = 308$

$\therefore$ The numbers are 14, 22

Then their sum = $14 + 22 = 36$

13. Which of the following cannot be the HCF of two numbers whose LCM is 120?

- a) 60 b) 40 c) 80 d) 30

Solution : c) 80

Try this

A small boy went to a town to sell a basket of wood apples. On the way, some robbers grabbed the fruits from him and ate them. The small boy went to the King and complained. The king asked him, "How many wood apples did you bring?". The boy replied, "Your Majesty! I didn't know, but I knew that if you divided my fruits into groups of 2, one fruit would be left in the basket". He continued saying that if the fruits were divided into groups of 3, 4, 5 and 6, the fruits left in the basket would be 2, 3, 4 and 5 respectively. Also, if the fruits were divided into groups of 7, no fruit would be there in the basket. Can you find the number of fruits, the small boy had initially?

(This problem is taken from the famous Mathematics problems collection book in Tamil called "Kanakathikaram" under the heading of "Wood Apple Problem")

Solution:

LCM of 3, 4, 5, 6 is 60

Therefore $60 - 1 = 59$

$59 + 60 = 119$

∴ The answer is 119 which is divisible by 7.

Exercise 1.3**Miscellaneous Practice Problems**

1. Every even number greater than 2 can be expressed as the sum of two prime numbers. Verify this statement for every even number upto 16.

Solution:

$$4 = 2 + 2$$

$$6 = 3 + 3$$

$$8 = 3 + 5$$

$$10 = 3 + 7$$

$$12 = 5 + 7$$

$$14 = 3 + 11$$

$$16 = 5 + 11$$

2. Is 173 a prime? Why?

Solution:

173 is a prime number. Since it has no factor other than 1 and itself.

3. For which of the numbers, from $n = 2$ to 8 , is $2n - 1$ a prime?

Solution :

$$n = 2 \Rightarrow 2(2) - 1 = 4 - 1 = 3 \text{ (prime)}$$

$$n = 3 \Rightarrow 2(3) - 1 = 6 - 1 = 5 \text{ (prime)}$$

$$n = 4 \Rightarrow 2(4) - 1 = 8 - 1 = 7 \text{ (prime)}$$

$$n = 5 \Rightarrow 2(5) - 1 = 10 - 1 = 9$$

$$n = 6 \Rightarrow 2(6) - 1 = 12 - 1 = 11 \text{ (prime)}$$

$$n = 7 \Rightarrow 2(7) - 1 = 14 - 1 = 13 \text{ (prime)}$$

$$n = 8 \Rightarrow 2(8) - 1 = 16 - 1 = 15$$

When $n = 2, 3, 4, 6, 7$ then $2n - 1$ is a prime number

4. Explain your answer with reason for the following statements.

a) A number is divisible by 9, if it is divisible by 3.

b) A number is divisible by 6, if it is divisible by 12.

Solution :

a) A number divisible by 3 is not divisible by 9

Ex : 15 divisible by 3 but not divisible by 9

b) A number divisible by 12 is divisible by 6 also

Ex : 24 divisible by 12 and it is divisible by 6 also.

5. Find A as required:

(i) The greatest 2 digit number 9A is divisible by 2.

(ii) The least number 567A is divisible by 3.

(iii) The greatest 3 digit number 9A6 is divisible by 6.

(iv) The number A08 is divisible by 4 and 9.

(v) The number 225A85 is divisible by 11.

Solution :

$$(i) \quad 9A = 98 \Rightarrow A = 8$$

$$(ii) \quad 567A = 5670 \Rightarrow A = 0$$

$$(iii) \quad 9A6 = 996 \Rightarrow A = 9$$

$$(iv) \quad A08 = 108 \Rightarrow A = 1$$

$$(v) \quad 225A85 = 225885 \Rightarrow A = 8$$

6. Numbers divisible by 4 and 6 are divisible by 24.

Verify this statement and support your answer with an example.

Solution :

12 is divisible by 4 and 6 but not divisible by 24.

Therefore the given statement is false

7. The sum of any two successive odd numbers is always divisible by 4. Justify this statement with an example.

Solution :

$$\begin{aligned} 1 + 3 &= 4 \\ 3 + 5 &= 8 \\ 5 + 7 &= 12 \\ 7 + 9 &= 16 \end{aligned}$$

Therefore sum of any two successive odd numbers is always divisible by 4

8. Find the length of the longest rope that can be used to measure exactly the ropes of length 1m 20cm, 3m 60cm and 4m.

Solution :

$$\begin{aligned} 1 \text{ m } 20 \text{ cm} &= 1 \times 100 + 20 = 120 \text{ cm} \\ 3 \text{ m } 60 \text{ cm} &= 3 \times 100 + 60 = 360 \text{ cm} \\ 4 \text{ m} &= 4 \times 100 = 400 \text{ cm} \\ \text{HCF OF } 120, 360, 400 &= 2 \times 2 \times 2 \times 5 = 40 \text{ cm} \end{aligned}$$

$$\begin{array}{r|l} 2 & 120, 360, 400 \\ 2 & 60, 180, 200 \\ 2 & 30, 90, 100 \\ 5 & 15, 45, 50 \\ & 3, 9, 10 \end{array}$$

The length of longest rope = 40 cm

Challenge Problems

9. The sum of three prime numbers is 80. The difference of two of them is 4. Find the numbers.

Solution :

The numbers are 2, 37, 41
 Since, Sum = $2 + 37 + 41 = 80$
 and differences $41 - 37 = 4$

10. Find the sum of all the prime numbers between 10 and 20 and check whether that sum is divisible by all the single digit numbers.

Solution :

Prime numbers between 10 and 20 are 11, 13, 17, 19
 Sum = $11 + 13 + 17 + 19 = 60$
 60 is divisible by 1, 2, 3, 4, 5, 6 but not divisible by 7, 8, 9

11. Find the smallest number which is exactly divisible by all the numbers from 1 to 9.

Solution :

$$\begin{array}{r}
 2 \overline{) 1, 2, 3, 4, 5, 6, 7, 8, 9} \\
 2 \overline{) 1, 1, 3, 2, 5, 3, 7, 4, 9} \\
 2 \overline{) 1, 1, 3, 1, 5, 3, 7, 2, 9} \\
 3 \overline{) 1, 1, 3, 1, 5, 3, 7, 1, 9} \\
 3 \overline{) 1, 1, 1, 1, 5, 1, 7, 1, 3} \\
 5 \overline{) 1, 1, 1, 1, 5, 1, 7, 1, 1} \\
 7 \overline{) 1, 1, 1, 1, 1, 1, 7, 1, 1} \\
 \quad 1, 1, 1, 1, 1, 1, 1, 1, 1
 \end{array}$$

$$\text{LCM} = 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 7 = 2520$$

12. The product of any three consecutive numbers is always divisible by 6. Justify this statement with an example.

Solution :

Yes, the product of any three consecutive numbers is always divisible by 6

Ex : $2 \times 3 \times 4 = 24$ divisible by 6

13. Malarvizhi, Karthiga and Anjali are friends and natives of the same village. They work at different places. Malarvizhi comes to her home once in 5 days. Similarly, Karthiga and Anjali come to their homes once in 6 days and 10 days respectively. Assuming that they met each other on the 1st of October, when will all the three meet again?

Solution :

$$\begin{array}{r}
 2 \overline{) 5, 6, 10} \\
 3 \overline{) 5, 3, 5} \\
 5 \overline{) 5, 1, 5} \\
 \quad 1, 1, 1
 \end{array}$$

$$\text{LCM of } 5, 6, 10 = 2 \times 3 \times 5 = 30$$

They meet each other after 30 days on November 1st.

14. In an apartment consisting of 108 floors, two lifts A & B starting from the ground floor, stop at every 3rd and 5th floors respectively. On which floors, will both of them stop together?

Solution : LCM OF 3, 5 = 15

∴ They stop together at 15, 30, 45, 60, 75, 90 and 105

SELECTION 6 MATHS 18 TERM-II 5 in 1

15. The product of 2 two digit numbers is 300 and their HCF is 5. What are the numbers?

Solution :

$$\begin{aligned} \text{LCM} &= \frac{\text{Product of numbers}}{\text{HCF}} \\ &= \frac{300}{5} = 60 \end{aligned}$$

$$\text{The number} = \frac{60}{5} = 15$$

$$\text{The other number} = \frac{300}{5} = 20$$

∴ The numbers are 15 and 20

16. Find whether the number 564872 is divisible by 88. (use of the test of divisibility rule for 8 and 11 will help!)

Solution :

Yes, 564872 is divisible by 8 and 11.

Hence it is divisible by 88 also.

17. Wilson, Mathan and Guna can complete one round of a circular track in 10, 15 and 20 minutes respectively. If they start together at 7 a.m from the starting point, at what time will they meet together again at the starting point?

Solution :

LCM of 10, 15, 20 = $2 \times 2 \times 3 \times 5$ = 60 minutes = 1hr

$$\begin{array}{r|l} 2 & 10, 15, 20 \\ 2 & 5, 10, 15 \\ 5 & 5, 15, 5 \\ 3 & 1, 3, 1 \\ \hline & 1, 1, 1 \end{array}$$

∴ They meet together again at 8.00 a.m.

Chapter-2. MEASUREMENTS

Exercise 2.1

1. Fill in the blanks

(i) $250\text{ ml} + \frac{1}{2}\text{ l} = \dots\dots\dots \text{ l}$

Solution:

$$\frac{1}{4} + \frac{1}{2} = \frac{1+2}{4} = \frac{3}{4} \text{ l}$$

(ii) $150\text{ kg } 200\text{ g} + 55\text{ kg } 750\text{ g} = \dots\dots\text{ kg } \dots\dots\text{ g}$

Solution: 205 Kg 950 g

(iii) $20\text{ l} - 1\text{ l } 500\text{ ml} = \dots\dots\dots \text{ l } \dots\dots\dots \text{ ml}$

Solution: 18 l 500 ml

(iv) $450\text{ ml} \times 5 = \dots\dots\dots \text{ l } \dots\dots\dots \text{ ml}$

Solution: 2 l 250 ml

(v) $50\text{ kg} + 100\text{ g} = \dots\dots\dots$

Solution:

$$\frac{50 \times \cancel{1000}}{\cancel{1000}} = 500\text{ g}$$

2. Say True or False.

(i) Pugazhenthai ate 100 g of nuts which is equal to 0.1 kg.

Solution: True

Hint: $\frac{100}{1000} \text{ Kg} = 0.1 \text{ Kg}$

(ii) Meena bought 250 ml of buttermilk which is equal to 2.5 l.

Solution: False

Hint: $\frac{250}{1000} \text{ l} = 0.250\text{ l}$

(iii) Karkuzhali's bag 1 kg 250 g and Poongodi's bag 2 kg 750 g. The total weight of their bags 4 kg.

Solution: True

(iv) Vanmathi bought 4 books each weighing 500 g. Total weight of 4 books is 2 kg.

Solution: True

Hint: $4 \times 500\text{ g} = 2000\text{ g} = \frac{2000}{1000} = 2\text{ Kg}$

SELECTION 6 MATHS 2 TERM-II 5 in 1

(v) Gayathri bought 1 kg of birthday cake. She shared 450 g with her friends. The weight of cake remaining is 650 g.

Solution : False

Hint: $1 \text{ Kg} - 450 \text{ g} = 1000 \text{ g} - 450 \text{ g} = 550 \text{ g}$

3. Convert into indicated units:

(i) 10 l and 50 ml into ml

Solution: $10 \text{ l } 5 \text{ ml} = 10 \times 1000 \text{ ml} + 5 \text{ ml}$
 $= 10000 \text{ ml} + 5 \text{ ml}$
 $= 10005 \text{ ml}$

(ii) 4 km and 300 m into m

Solution: $4 \text{ Km } 300 \text{ m} = 4 \times 1000 \text{ m} + 300 \text{ m}$
 $= 4000 \text{ m} + 300 \text{ m}$
 $= 4300 \text{ m}$

(iii) 300 mg into g

Solution:

$$300 \text{ mg} = \frac{300}{1000} \text{ g} = 0.3 \text{ g}$$
4. 4. Convert into higher units :

(i) 13000 mm (km, m, cm)

Solution: $13000 \text{ mm} = \frac{13000}{10} \text{ cm} = 1300 \text{ cm}$

$13000 \text{ mm} = 1300 \text{ cm} = \frac{1300}{100} \text{ m} = 13 \text{ m}$

$13000 \text{ mm} = 13 \text{ Km} = \frac{13}{1000} \text{ Km} = 0.013 \text{ Km}$

(ii) 8257 ml (kl, l)

Solution: $8257 \text{ ml} = \frac{8257}{1000} \text{ l} = 8.257 \text{ l}$

$8257 \text{ ml} = 8.257 \text{ l} = \frac{8.257}{1000} \text{ kl} = 0.008257 \text{ kl}$

5. Convert into lower units :

(i) 15 km (m, cm, mm)

Solution: $15 \text{ Km} = 15 \times 1000 \text{ m} = 15000 \text{ m}$
 $15 \text{ km} = 15000 \text{ m} = 15000 \times 100 \text{ cm} = 1500000 \text{ cm}$
 $15 \text{ km} = 1500000 \text{ cm} = 1500000 \times 10 \text{ mm} = 15000000 \text{ mm}$

SELECTION 6 MATHS**3****TERM-II 5 in 1****(ii) 12 kg (g, mg)**

Solution: $12 \text{ Kg} = 12 \times 1000 \text{ g} = 12000 \text{ g}$
 $12 \text{ Kg} = 12000 \times 1000 \text{ mg} = 12000000 \text{ mg}$

6. Compare and put > or < or = in the following:**(i) 800 g + 150 g $\square$ 1 kg****Solution:** $800 \text{ g} + 150 \text{ g} < 1 \text{ kg}$ ($800 \text{ g} + 150 \text{ g} = 950 \text{ g}$)**(ii) 600 ml + 400 ml $\square$ 1 l**

Solution: $600 \text{ ml} + 400 \text{ ml} = 1 \text{ l}$
 $(600 \text{ ml} + 400 \text{ ml} = 1000 \text{ ml} = 1 \text{ l})$

(iii) 6 m 25 cm $\square$ 600 cm + 25 cm

Solution: $6 \text{ m } 25 \text{ cm} = 600 \text{ cm} + 25 \text{ cm}$
 $(6 \text{ m } 25 \text{ cm} = 625 \text{ cm})$

(iv) 88 cm $\square$ 8 m 8 cm

Solution: $88 \text{ cm} < 8 \text{ m } 8 \text{ cm}$
 $(8 \text{ m} = 800 \text{ cm}; 800 \text{ cm} + 8 \text{ cm} = 808 \text{ cm})$

(v) 55 g $\square$ 550 mg

Solution: $55 \text{ g} > 550 \text{ mg}$
 $(55 \times 1000 \text{ mg} = 55000 \text{ mg})$

7. Geetha brought 2 l and 250 ml of water in a bottle. Her friend drank 300 ml from it. How much of water is remaining in the bottle?

Solution:

	l	ml
Water in the bottle =	2	250
Water drank =		300
Remaining water in the bottle =	1 l 950 ml	

8. Thenmozhi's height is 1.25 m now. She grows 5 cm every year. What would be her height after 6 years?

Solution:Height of Thenmozhi = $1.25 \text{ m} = 1.25 \times 100 \text{ cm} = 125 \text{ cm}$ Height increased for 6 years = $6 \times 5 \text{ cm} = 30 \text{ cm}$ Height after 6 years = $125 \text{ cm} + 30 \text{ cm} = 155 \text{ cm}$

9. Priya bought 22 1/2 kg of onion, Krishna bought 18 3/4 kg of onion and Sethu bought 9 kg 250 g of onion. What is the total weight of onion did they buy?

Solution:

	Kg	g
Weight of onion bought by Priya =	22	500
Weight of onion bought by Krishna =	18	750
Weight of onion bought by Sethu =	9	250

Total weight of onion = 50kg 500g

SELECTION 6 MATHS 4 TERM-II 5 in 1

Hint: $\frac{1}{2}$ Kg = $\frac{1}{2} \times \frac{500}{1000} = 500$ g

$\frac{3}{4}$ Kg = $\frac{3}{4} \times \frac{250}{1000} = 750$ g

10. Maran walks 1.5 km every day to reach the school while Mahizhan walks 1400m. Who walks more distance and by how much?.

Solution :

Distance covered by Maran = 1.5 Km = 1.5 x 1000m
= 1500 m

Distance covered by Mahizhan = 1400m

∴ Maran covered more distance.

Distance covered more = 1500m - 1400m = 100m

11. In a JRC one day camp, 150 gm of rice and 15 ml oil are needed for a student. If there are 40 students to attend the camp how much of rice and oil are needed?

Solution :

Rice required for 40 students = 40 x 150g = 6000g
= $\frac{6000}{1000}$ = 6 Kg

Rice required for 40 students = 40 x 15ml = 600ml
= $\frac{600}{100}$ = 0.6l

12. In a school, 200 litres of lemon juice is prepared. If 250 ml lemon juice is given to each student, how many students get the Juice?

Solution :

Total number of litres prepared = 200 x 1000 ml
= 200000 ml

Juice given for each student = 250 ml

∴ Number of students = $\frac{200000}{250}$ = 800 students

13. How many glasses of the given capacity will fill a 2 litre jug?

(i) 100 ml.....

Solution : $\frac{2000\text{ml}}{100\text{ml}}$ = 20 glasses

SELECTION 6 MATHS**5****TERM-II 5 in 1****(ii) 50 ml.....**

$$\text{Solution: } \frac{2000 \text{ ml}}{50 \text{ ml}} = 40 \text{ glasses}$$

(iii) 500 ml.....

$$\text{Solution: } \frac{2000 \text{ ml}}{500 \text{ ml}} = 4 \text{ glasses}$$

(iv) 1 l.....

$$\text{Solution: } \frac{2000 \text{ ml}}{1000 \text{ ml}} = 2 \text{ glasses}$$

(v) 250 ml.....

$$\text{Solution: } \frac{2000 \text{ ml}}{250 \text{ ml}} = 8 \text{ glasses}$$

Objective Type Questions**14. 9 m 4 cm is equal to _____**

- a) 94 cm b) 904 cm c) 9.4 cm d) 0.94 cm

Solution: b) 904 cm

$$\text{Hint: } 9 \text{ m } 4 \text{ cm} = 9 \times 100 \text{ cm} + 4 \text{ cm} \\ = 900 + 4 \text{ cm} = 904 \text{ cm}$$

15. 1006 g is equal to _____

- a) 1 kg 6 g b) 10 kg 6 g c) 100 kg 6 g d) 1 kg 600 g

Solution: a) 1 Kg 6g

$$\text{Hint: } 1006 \text{ g} = 1000 \text{ Kg} + 6 \text{ g} = 1 \text{ Kg } 6 \text{ g}$$

16. Every day 150 l of water is sprayed in the garden. Water sprayed in a week is _____

- a) 700 l b) 1000 l c) 950 l d) 1050 l

Solution: d) 1050 l

$$\text{Hint: } 150 \text{ l} \times 7 = 1050 \text{ l}$$

17. Which is the greatest? 0.007 g, 70 mg, 0.07 cg

- a) 0.07 cg b) 0.007 g c) 70 mg d) all are equal

Solution: c) 70 mg

$$\text{Hint: } 0.07 \text{ cg} = 0.07 \times 10 \text{ mg} = 0.7 \text{ mg} \\ 0.007 \text{ g} = 0.007 \times 1000 \text{ mg} = 7 \text{ mg} = 70 \text{ mg}$$

18. 7 km – 4200 m is equal to _____

- a) 3 km 800 m b) 2 km 800 m c) 3 km 200 m d) 2 km 200 m

Solution: b) 2 km 800 m

$$\text{Hint: } 7 \text{ km} = 7000 \text{ m} \\ 7000 \text{ m} - 4200 \text{ m} = 2800 \text{ m} = 2 \text{ km } 800 \text{ m}$$

Try this

1. Complete the following table:

Metric Unit Table (Hierarchy of Units)						
For Length						
Kilo metre (km)	Hecto metre (hm)	Deca metre (dam)	Meter (m)	Deci metre (dm)	Centi metre (cm)	Milli metre (mm)
For Weight						
Kilo gram (kg)	Hecto gram (hg)	Deca gram (dag)	Gram (g)	Deci gram (dg)	Centi gram (cg)	Milli gram (mg)
For Volume						
Kilo Litre (kL)	Hecto Litre (hL)	Deca Litre (daL)	Litre (L)	Deci Litre (dL)	Centi Litre (cL)	Milli Litre (mL)

2. Determine which metric unit you would use to express the following :

i) The length of your middle finger.

Ans : cm

ii) The weight of an elephant.

Ans : kg

iii) The weight of the ring.

Ans : g

iv) The weight of the tablet.

Ans : mg

v) The length of the safety pin.

Ans : cm

vi) The height of the building.

Ans : m

vii) The length of the sea shore in tamilnadu.

Ans : km

viii) The volume of cup of coffee.

Ans : mL

ix) The capacity of water in the tank.

Ans : L

Think.

Which of these is heavier in weight?

5 kg of cotton; 5000 g of Iron

Solution :

Both are equal

5 kg of cotton = $5 \times 1000 \text{ g} = 5000 \text{ g}$

Try these

i) 23 km into m

Solution : $23 \text{ km} = 23 \times 1000 \text{ m} = 23000 \text{ m}$

ii) 1.78 m into cm

Solution : $1.78 \text{ m} = 1.78 \times 100 \text{ cm} = 178 \text{ cm}$

iii) 7814 m into km

Solution : $7814 \text{ m} = \frac{7814}{1000} \text{ km} = 7.814 \text{ km}$

iv) 8.67 mm into cm

Solution : $8.67 \text{ mm} = 8.67 \times 10 \text{ cm} = 86.7 \text{ cm}$

v) 16 l into ml

Solution : $16 \text{ l} = 16 \times 1000 \text{ ml} = 16000 \text{ ml}$

vi) 1500 ml into l

Solution : $1500 \text{ ml} = \frac{1500}{1000} \text{ l} = 1.5 \text{ l}$

vii) 2360 l into kl

Solution : $2360 \text{ l} = \frac{2360}{1000} \text{ kl} = 2.36 \text{ kl}$

viii) 873 l into ml

Solution : $873 \text{ l} = 873 \times 1000 \text{ ml} = 873000 \text{ ml}$

ix) 40 mg into g

Solution : $40 \text{ mg} = \frac{40}{1000} \text{ g} = 0.04 \text{ g}$

x) 1550 g into kg

Solution : $1550 \text{ g} = \frac{1550}{1000} \text{ kg} = 1.55 \text{ kg}$

xi) 6.5 kg into g

Solution : $6.5 \text{ kg} = 6.5 \times 1000 \text{ g} = 6500 \text{ g}$
 $= 6500 \times 1000 \text{ mg} = 6500000 \text{ mg}$

xii) 723 g into mg

Solution : $723 \text{ g} = 723 \times 1000 \text{ mg} = 723000 \text{ mg}$

Think.

1. Five kilograms of compost is needed for a coconut tree for every six months. How many kilograms of compost is needed for 50 such coconut trees for one and half years?

Solution :

Compost needed for 6 months = 5 kg
 Compost needed for 1 1/2 years = $3 \times 5 \text{ kg} = 15 \text{ kg}$
 ∴ Compost needed for 50 trees = $50 \times 15 = 750 \text{ kg}$

2. a. Is it correct: $4 \text{ m} + 3 \text{ cm} = 7 \text{ m}$

Solution :

$4 \text{ m} + 3 \text{ cm} = 400 \text{ cm} + 3 \text{ cm} = 403 \text{ cm}$
 $7 \text{ m} = 700 \text{ cm}$
 ∴ It is not correct.

b. Can we add the following?

i) $6 \text{ l} + 7 \text{ kg}$, ii) $3 \text{ m} + 5 \text{ l}$ iii) $400 \text{ ml} + 300 \text{ g}$

Solution :

We can't add them (since they are different units)

Exercise 2.2

1. Say the time in two ways:

				
(i)	(ii)	(iii)	(iv)	(v)

Solution :

- (i) 10:15 hours; quarter past 10
- (ii) 6:45 hours; quarter to 7
- (iii) 4:10 hours; 10 minutes past 4
- (iv) 3:30 hours; half past 3
- (v) 9:40 hours; 20 minutes to 10

2. Match the following:

(i) 9.55	a) 20 minutes past 2
(ii) 11.50	b) quarter past 4
(iii) 4.15	c) quarter to 8
(iv) 7.45	d) 5 minutes to 10
(v) 2.20	e) 10 minutes to 12

Solution :

(i) 9.55	d) 5 minutes to 10
(ii) 11.50	e) 10 minutes to 12
(iii) 4.15	b) quarter past 4
(iv) 7.45	c) quarter to 8
(v) 2.20	a) 20 minutes past 2

3. Convert the following:

(i) 20 minutes into seconds

Solution : 20 minutes = $20 \times 60 = 1200$ seconds

(ii) 5 hours 35 minutes 40 seconds into seconds

Solution : 5 hours = 5×3600 seconds +
 35 minutes = 35×60 seconds +
 40 seconds
 = 18000 seconds + 2100 seconds + 40 seconds
 = 20140 seconds

(iii) $3\frac{1}{2}$ hours into minutes

Solution : 3 hours = 3×60 minutes + $\frac{1}{2} \times 60$ minutes
 = 180 minutes + 30 minutes = 210 minutes

(iv) 580 minutes into hours

Solution : 580 minutes = $\frac{580}{60}$ hours = $9\frac{4}{6}$ hours
 = 9 hours $\frac{4}{6} \times 60$ minutes
 = 9 hours 40 minutes

(v) 25200 seconds into hours

Solution : 25200 seconds = $\frac{25200}{3600}$ = 7 hours

SELECTION 6 MATHS 10 TERM-II 5 in 1

4. The duration of electricity consumed by the farmer for his pumpset on Monday and Tuesday was 7 hours 20 minutes 35 seconds and 3 hours 44 minutes 50 seconds respectively. Find the total duration of consumption of electricity.

Solution :	hours	minutes	seconds
Duration on Monday	7	20	35
Duration on Tuesday	3	44	50
	11	64	85

∴ Duration of consumption of electricity
= 11 hours 5 minutes 25 seconds

5. Subtract 10 hours 20 minutes 35 seconds from 12 hours 18 minutes 40 seconds

Solution :	hours	minutes	seconds
	11	60+18=78	
	12	18	40
(-) 10	20	35	
	1 hour	58 minutes	05 seconds

6. Change the following into 12 hour format

(i) 02:00 hours

Solution : 2.00 a.m

(ii) 08:45 hours

Solution : 8.45 a.m

(iii) 21:10 hours

Solution : 21.00 - 12 = 9:10 p.m

(iv) 11:20 hours

Solution : 11.20 a.m

(v) 00:00 hours

Solution : 12.00 midnight

7. Change the following into 24 hour format

(i) 3.15 a.m

Solution : 3:15 hours

(ii) 12.35 p.m

Solution : 12:35 hours

(iii) 12.00 noon

Solution : 12:00 hours

(iv) 12.00 midnight

Solution : 00:00 (or) 24:00 hours

SELECTION 6 MATHS 11 TERM-II 5 in 1

8. Calculate the duration of time**(i) from 5.30 a.m to 12.40 p.m**

Solution :

	hours	minutes
	12	40
(-)	5	30
	7	10

7 hours 10 minutes

(ii) from 1.30 p.m to 10.25 p.m

Solution : 10:25 pm = 12 + 10:25 = 22:25 hours

1:30 pm = 12 + 1:30 = 13:30 hours

hours	minutes
21	60+25=85
22	25
13	30
8	35

8 hours 35 minutes

(iii) from 20:00 hours to 4:00 hours**Solution :**

From 20 hours to 24 hours = 4 hours

From 0 hour to 4 hours = 4 hours

8 hours

(iv) from 17:00 hours to 5:15 hours**Solution :**

From 17 hours to 24 hours = 7 hours

From 0 hour to 5:15 hours = 5 hours 15 minutes

12 hours 15 minutes

SELECTION 6 MATHS**12****TERM-II 5 in 1**

9. The departure and arrival timing of the Vaigai Superfast Express (No. 12635) from Chennai Egmore to Madurai Junction are given. Read the details and answer the following.

Station	Arrival	Departure
Chennai Egmore	-	13:40
Tambaram	14:08	14:10
Chengalpattu	14:38	14:40
Villupuram	15:50	15:55
Virudhachalam	16:28	16:30
Ariyalur	17:04	17:05
Trichy	18:30	18:35
Dindigul	20:03	20:05
Sholavandan	20:34	20:35
Madurai	21:20	-

(i) At what time does the Vaigai Express start from Chennai and arrive at Madurai?

Solution: Time start from Chennai = 13:40 hours

Time to arrive at Madurai = 21:20 hours

(ii) How many halts are there between Chennai and Madurai?

Solution: Number of halts = 8

(iii) How long does the train halt at the Villupuram Junction?

Solution: Time halt at villupuram = 15:55 - 15:50
= 5 minutes

(iv) At what time does the train come to Sholavandan?

Solution: Time to arrive sholavandan = 20:34 hours

(v) Find the journey time from Chennai Egmore to Madurai?

Solution:

	hours	minutes
	20	60+20=80
	21	20
	13	40
	7	40

7 hours 40 minutes

SELECTION 6 MATHS 13 TERM-II 5 in 1

10. Manickam joined a chess class on 20.02.2017 and due to exam, he left practice after 20 days. Again he continued practice from 10.07.2017 to 31.03.2018. Calculate, how many days did he practice?

Solution :

Number of days from 20.2.17	=	20 days
July (10.7.2017) (31-9)	=	22 days
August	=	31 days
September	=	30 days
October	=	31 days
November	=	30 days
December	=	31 days
January	=	31 days
February	=	28 days
March	=	31 days

Total number of days	285 days
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11. A clock gains 3 minutes every hour. If the clock is set correctly at 5 a.m, find the time shown by the clock at 7 p.m?

Solution :

5 am	=	5 hours
7 pm	=	19 hours
		14 hours

Time gains in 1 hour = 3 minutes

Time gains in 14 hours = $14 \times 3 = 42$ minutes

∴ Time shown by the clock at 7 pm = 7 hours 42 minutes

12. Find the number of days between the Republic day and Kalvi Valarchi Day in 2020.

Solution : (From January 26-202 to July 15-2020)

January (31-25)	=	6 days
February (leap year)	=	29 days
March	=	31 days
April	=	30 days
May	=	31 days
June	=	30 days
July	=	15 days

Total number of days	172 days
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SELECTION 6 MATHS 14 TERM-II 5 in 1

13. If 11th of January 2018 is Thursday , what is the day on 20th July of the same year?

Solution :

January (31-10)	=	21 days
February (ordinary year)	=	28 days
March	=	31 days
April	=	30 days
May	=	31 days
June	=	30 days
July	=	19 days

Total number of days	190 days
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$$\frac{190}{7} = 27 \frac{1}{7} = 27 \text{ weeks } 1 \text{ day}$$

Required day is the first day after Thursday
 ∴ 20th July is Friday

14. (i) Convert 480 days into years.

Solution : 480 days = $\frac{480}{365}$ year

$$= 1 \frac{115}{365} = 1 \text{ year } 3 \text{ months } 25 \text{ days}$$

(ii) Convert 38 months into years.

Solution : 38 months = $\frac{38}{12}$ year

$$= 3 \frac{2}{12} \text{ years} = 3 \text{ years } 2 \text{ months}$$

15. Calculate your age as on 01.06.2018

Objective Type Questions

16. 2 days = hours.

- a) 38 b) 48 c) 28 d) 40

Solution : b) 48

17. 3 weeks = days

- a) 21 b) 7 c) 14 d) 28

Solution : a) 21

SELECTION 6 MATHS 15 TERM-II 5 in 1

18. Number of ordinary years between two consecutive leap years is

- a) 4 years b) 2 years c) 1 year d) 3 years

Solution : d) 3 years

19. What time will it be 5 hours after 22:35 hours?

- a) 2:30 hours b) 3:35 hours c) 4:35 hours d) 5:35 hours

Solution : b) 3:35 hours

Hint: $22:35 + 5 = 27:35$ hours

$27:35 - 24:00$ hours = 3:35 hours

20. $2\frac{1}{2}$ years is equal to _____ months.

- a) 25 b) 30 c) 24 d) 5

Solution : b) 30

Hint: $2\frac{1}{2}$ years = 2×12 months + $\frac{1}{2} \times 12$ months
 = (24+6) months
 = 30 months

Try these.

Say the following time in two ways:

- a) 9.20 b) 4.50 c) 5.15 d) 6.45 e) 11.30

Solution :

- a) 9:20 hours ; 20 minutes past 9
 b) 4:50 hours ; 10 minutes to 5
 c) 5:15 hours ; quarter past 5
 d) 6:45 hours ; quarter to 7
 e) 11:30 hours ; half to 12

Try these

Convert the following:

- i) 4 hours = _____ minutes **Solution : 240**
 ii) 240 minutes = _____ hours **Solution : 4**
 iii) 30 minutes = _____ seconds **Solution : 1800**
 iv) 3600 seconds = _____ hours **Solution : 1**
 v) 2 hours = _____ seconds **Solution : 7200**

Convert the 12 hour format into the 24 hour format and vice versa

10.40 a.m = 10:40 hours	1 p.m = 13:00 hours
11 a.m = 11:00 hours	11.15 p.m = 23:15 hours
1.15 a.m = _____ hours	3 p.m = _____ hours
5 a.m = _____ hours	12 midnight = _____ hours
16:20 hours = _____ a.m/p.m	12:25 hours = _____ a.m/p.m
00:40 hours = _____ a.m/p.m	4:10 hours = _____ a.m/p.m

SELECTION 6 MATHS 16 TERM-II 5 in 1**Solution :**

10.40 a.m = 10:40 hours	1 p.m = 13:00 hours
11 a.m = 11:00 hours	11.15 p.m = 23:15 hours
1.15 a.m = <u>01:15</u> hours	3 p.m = <u>15:00</u> hours
5 a.m = <u>05:00</u> hours	12 midnight = <u>00:00</u> hours
16:20 hours = <u>04:20</u> p.m	12:25 hours = <u>12:25</u> p.m
00:40 hours = <u>00:40</u> a.m	4:10 hours = <u>04:10</u> a.m

Think

Why do we divide the centuries by 400 to find whether it is leap year or not?

Solution :

100 years = 36500 + 24.25 days
 ∴ 1 day deficit for every 400 years
 ∴ We are dividing by 400

Try these

1. Check whether the following years are Ordinary or Leap Year? 1994; 1985; 2000; 2007; 2010; 2100

Solution :

Ordinary years - 1994, 1985, 2007, 2010, 2100
 Leap year - 2000

2. How many days are there from 1st April to 30th June..

Solution :

April = 30 days
 May = 31 days
 June = 30 days
91 days

Activity

1. Collect some famous personalities whose birthday falls on 29th February.

Solution :

- (i) Morarji Desai
- (ii) Pope Paul III
- (iii) William (American actor)
- (iv) Rukmini Devi Arundale (Indian dancer)

SELECTION 6 MATHS 17 TERM-II 5 in 1

2. Collect the interesting facts about Big Ben clock in London.

Solution :

- (i) Each clock face is 23 ft on diameter
- (ii) Big Ben chimes can be heard as far away as five miles.
- (iii) Big Ben weights 16 tonnes and stands 7ft tall.

Exercise 2.3

Miscellaneous practice Problems

1. Two pipes whose lengths are 7 m 25 cm and 8 m 13 cm joined by welding and then a small piece 60cm is cut from the whole that is the remaining length of the pipe?

Solution :

		m	cm
Length of joined pipe	=	7	25
	(+)	8	13
		15 m	38 cm
Length of remaining pipe=		15 ¹⁴	38 ¹³⁸
	(-)		60
		14 m	78 cm

2. The saplings are planted at a distance of 2 m 50 cm in the road of length 5 km by saravanan. If he has 2560 saplings, how many saplings will be planted by him? how many saplings are left?

Solution :

Total distance	=	5 km
	=	5 x 1000 m = 5000 m
	=	5000 x 100 cm
	=	500000 cm
		500000 ²⁰⁰⁰
Number of saplings planted =		500000 ²⁰⁰⁰ = 2000
		2560
Number of saplings left	=	2560 - 2000 = 560

SELECTION 6 MATHS**18****TERM-II 5 in 1**

3. Put ✓ mark in the circles which adds upto the given measure.

1.	1 kg	☒ 500 g	☒ 50 g	☐ 100 g	☒ 200 g	☒ 250 g
2.	1 m	☐ 10 cm	☒ 30 cm	☒ 40 cm	☒ 25 cm	☒ 5 cm
3.	1 l	☒ 200 ml	☒ 100 ml	☐ 50 ml	☒ 500 ml	☒ 200 ml

4. Make a calendar for the month of February 2020.
(Hint: January 1st 2020 is Wednesday)

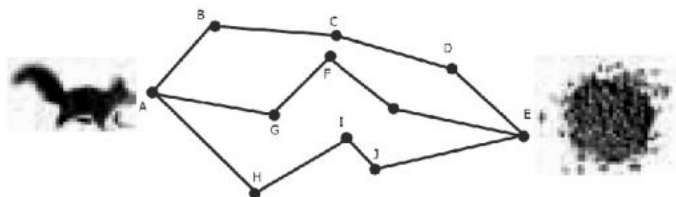
2020 FEBRUARY						
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

5. Observe and Collect the data for a minute:

i.	Number of times a person breathes	ii.	Number of situps
ii.	Number of times heart beats	iv.	Number of claps
iii.	Number of times the eyes blink	vi.	Number of lines to write
iv.	Distance by walking	viii.	Number of lines to read
v.	Distance by running	x.	Number of Tamil verbs to say

Challenge Problems

6. A squirrel wants to eat the grains quickly. Help the Squirrel to find the shortest way to reach the grains. (Use your scale to measure length of the line segments)



Solution :

Way	Distance
(i) A-B-C-D-E	$2 + 2.5 + 2.5 + 2 = 9$
(ii) A-G-F-K-E	$2.5 + 2 + 2 + 3 = 9.5$
(iii) A-H-I-J-E	$3 + 2.5 + 1 + 3 = 9.5$

Shortest way = A-B-C-D-E

7. A room has a door whose measures are 1 m wide and 2 m 50 cm high.

i. Can we take a bed of 2 m and 20 cm length and 90 cm wide into the room?

Solution :

Breadth of door	= 1 m	= 100 cm
Height of door	= 2 m 50 cm	= 250 cm
Length of bed	= 2 m 20 cm	= 220 cm
width of bed		= 90 cm

∴ We can take the bed into the room

8. A post office functions from 10 a.m to 5.45 p.m with a lunch break of 1 hour. If the post office works for 6 days a week, find the total duration of working hours in a week.

Solution :

Working hours in a day	= (10 am to 5.45 pm)
	- lunch break
	= 7:45 hours - 1 hour
	= 6:45 hours
Total duration for 6 days	= 6:45 x 6
	= 36 hours 270 minutes
	= 36 hours + 4 hours + 30 minutes
	= 40 hours 30 minutes

SELECTION 6 MATHS

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TERM-II 5 in 1

9. Seetha wakes up at 5.20 a.m. She spends 35 minutes to get ready and travels 15 minutes to reach the railway station. If the train departs exactly at 6:00 a.m, will Seetha catch the train?

Solution :

Time taken to get ready = 35 minutes
 Time taken to reach the station = 15 minutes
 Total time taken to reach the station
 = 5:20 am + (35+15) minutes
 = 5 hours 70 minutes
 = 6 hours 10 minutes

∴ Seetha will not catch the train

10. A doctor advised Vairavan to take one tablet every 6 hours once in the 1st day and once every 8 hours on the 2nd and 3rd day. If he starts to take 9.30 a.m first dose. Prepare a time chart to take tablet in railway time.

Solution :

First day	9.30 am	3.30 pm	9.30 pm
Second day	3.30 am	11.30 am	7.30 pm
Third day	3.30 am	11.30 am	7.030 pm