

MONTH : JANUARY

CLASS : V

SUBJECT : MATHEMATICS

CHAPTER NUMBER: 20

CHAPTER NAME : TIME

SUB-TOPIC : CONVERSION OF UNITS OF TIME.

EXERCISE 20 A

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**CHANGING YOUR TOMORROW**

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Website: [www.odmgroup.org](http://www.odmgroup.org)

Email: [info@odmps.org](mailto:info@odmps.org)

Toll Free: **1800 120 2316**

Sishu Vihar, Infocity Road, Patia, Bhubaneswar- 751024



**To Measure Time We Use Various Units Such As Seconds, Minutes, Hours, Days, Weeks, Months, Years Etc.**

### **DO YOU REMEMBER?**

**1 Year =** 365 / 366 (if it's leap year) days.

**1 month =** 30 / 31 ( except February)

**1 week =** 7 days

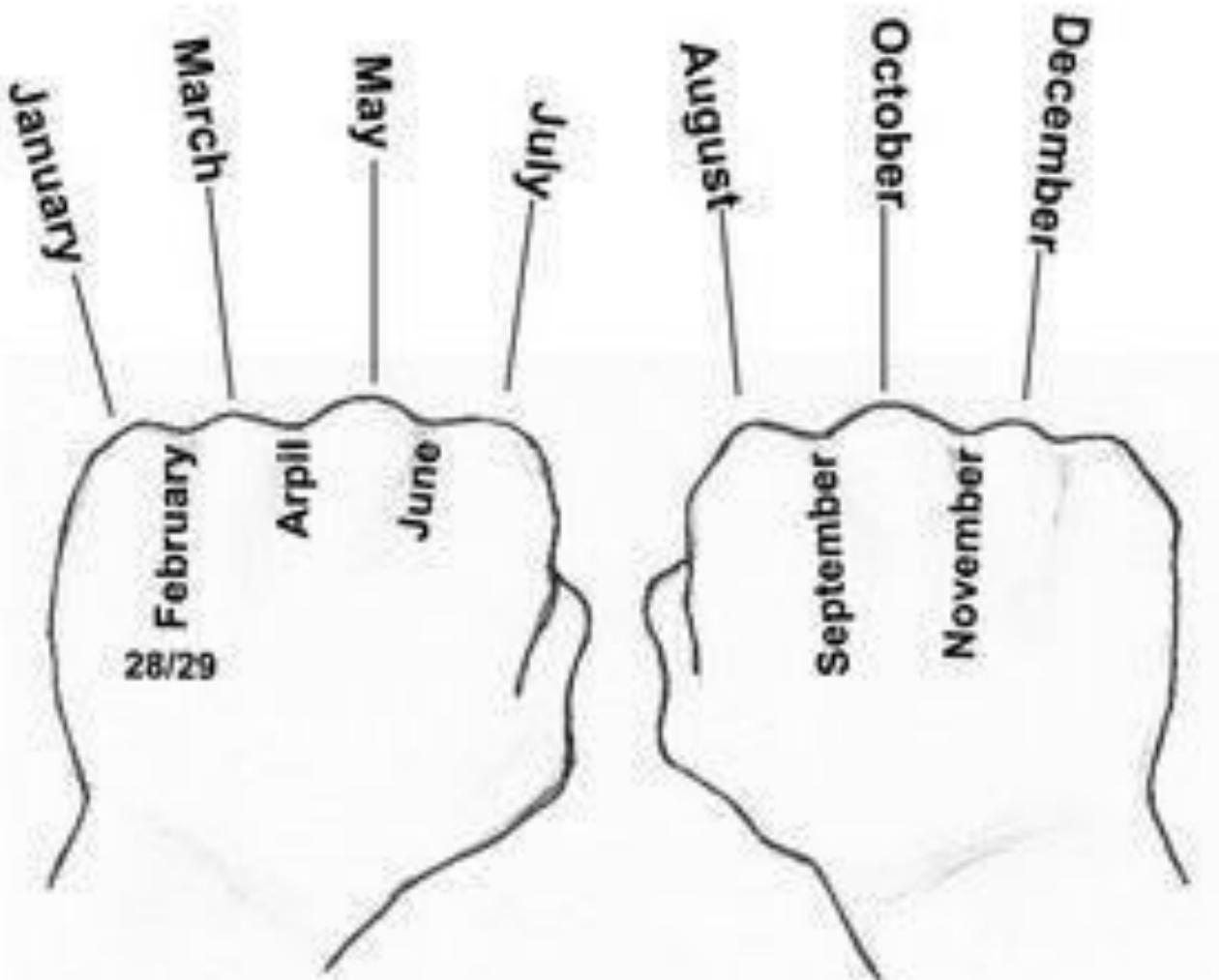
**1 day =** 24 hours

**1 hour =** 60 minutes

**1 minute =** 60 seconds

**1 year =** 12 months





TIME IS  
PRECIOUS

## Conversion of units of time.

When we convert greater units to smaller units we **MULTIPLY**.

### Conversion of minutes into seconds.

Convert 8 min 14 sec into seconds

$$1 \text{ m} = 60 \text{ sec}$$

$$8 \text{ m } 14 \text{ sec} = 8 \times 60 + 14$$

$$= 480 + 14 = \mathbf{494 \text{ sec}}$$

### Conversion of hours into minutes

Convert 9 hr 25 min into minutes.

$$1 \text{ hr} = 60 \text{ min}$$

$$9 \text{ hr } 25 \text{ min} = 9 \times 60 + 25$$

$$= 540 + 25 = \mathbf{565 \text{ min.}}$$



When we convert smaller units to greater units we **DIVIDE**

## Conversion of seconds into minutes.

Convert 772 sec into minutes

$$60 \text{ sec} = 1 \text{ m}$$

$$772 \text{ sec} = 772 \div 60$$

= 12 min 52 sec

## Conversion of days to weeks

## Convert 312 days into week

7 days = 1 week

$$312 \text{ days} = 312 \div 7$$

= 44 weeks 4 days

$$\begin{array}{r}
 & 1 & 2 \\
 & \boxed{6} & 0 \\
 - & 7 & 7 & 2 \\
 \hline
 & 6 & 0 \\
 \hline
 & 1 & 7 & 2 \\
 - & 1 & 2 & 0 \\
 \hline
 & & & 5 & 2
 \end{array}$$

$$\begin{array}{r}
 \overset{4}{4} \\
 \boxed{7} \quad 3 \ 1 \ 2 \\
 - \quad 2 \ 8 \\
 \hline
 3 \ 2 \\
 - \ 2 \ 8 \\
 \hline
 \overset{4}{4}
 \end{array}$$

TIME IS  
PRECIOUS

## EXERCISE 20 A

1. CONVERT

b. 9 hr 56 min into minutes

$$1 \text{ hr} = 60 \text{ min}$$

$$9 \text{ hr } 56 \text{ min} = 9 \times 60 + 56 =$$

$$540 + 56 = \textcolor{red}{596 \text{ min}}$$

c. 36 min into sec

$$1 \text{ min} = 60 \text{ sec}$$

$$36 \text{ min} = 36 \times 60 = \textcolor{red}{2160 \text{ sec}}$$

d. 12 min 28 sec into seconds

$$1 \text{ min} = 60 \text{ sec}$$

$$12 \text{ min } 28 \text{ s} = 12 \times 60 + 28 =$$

$$720 + 28 = \textcolor{red}{748 \text{ sec}}$$

f. 12 days 9 hrs into hours

$$1 \text{ day} = 24 \text{ hr}$$

$$12 \text{ day } 9 \text{ hr} = 12 \times 24 + 9 =$$

$$288 + 9 = \textcolor{red}{297 \text{ hrs}}$$



TIME IS  
PRECIOUS

## EXERCISE 20 A

2. Convert

a. **5 yrs 9 months into months**

$$1 \text{ year} = 12 \text{ months}$$

$$5 \text{ yrs } 9 \text{ month} = 5 \times 12 + 9 =$$

$$60 + 9 = \text{ **69 months**}$$

c. **12 weeks 15 days into days**

$$1 \text{ week} = 7 \text{ days}$$

$$12 \text{ weeks } 15 \text{ days} = 12 \times 7 + 15 =$$

$$84 + 15 = \text{ **99 days**}$$

d. **7 weeks into hours**

$$1 \text{ week} = 7 \text{ days}$$

$$7 \text{ weeks} = 7 \times 7 = \text{ **49 days**}$$

$$1 \text{ day} = 24 \text{ hr}$$

$$49 \text{ days} = 49 \times 24 = \text{ **1176 hours**}$$

g. **3 days 5 hours 30 mins into minutes**

$$1 \text{ day} = 24 \text{ hours}$$

$$3 \text{ days } 5 \text{ hours} = 3 \times 24 + 5 = 77 \text{ hours}$$

$$1 \text{ hour} = 60 \text{ mins}$$

$$77 \text{ hours } 30 \text{ min} = 77 \times 60 + 30 = \text{ **4650 hrs**}$$

TIME IS  
PRECIOUS

## EXERCISE 20 A

3. CONVERT :

a. 1 day into seconds

$$1 \text{ day} = 24 \text{ hrs}$$

$$1 \text{ hr} = 60 \text{ min}$$

$$24 \text{ hrs} = 24 \times 60 = \mathbf{1440 \text{ min}}$$

$$1 \text{ min} = 60 \text{ sec}$$

$$1440 \text{ min} = 1440 \times 60 = \mathbf{86400 \text{ sec}}$$



b. 5 weeks into sec.

$$1 \text{ week} = 7$$

$$5 \text{ week} = 5 \times 7 = \mathbf{35 \text{ days}}$$

$$1 \text{ day} = 24 \text{ hrs}$$

$$35 \text{ days} = 35 \times 24 = \mathbf{840 \text{ hrs}}$$

$$1 \text{ hr} = 60 \text{ min}$$

$$840 \text{ hrs} = 840 \times 60 = \mathbf{50400 \text{ min}}$$

$$1 \text{ min} = 60 \text{ sec}$$

$$50400 \text{ min} = 50400 \times 60 = \mathbf{3024000 \text{ sec}}$$



## EXERCISE 20 A

c. 2 months into seconds

1 month = 30 days

2 months =  $30 \times 2 = \mathbf{60 \text{ days}}$

1 day = 24 hrs

60 days =  $60 \times 24 = \mathbf{1440 \text{ hrs}}$

1 hr = 60 min

$1440 \text{ hrs} = 1440 \times 60 = \mathbf{86400 \text{ min}}$

1 min = 60 sec

$86400 \text{ min} = 86400 \times 60 = \mathbf{5184000 \text{ sec}}$

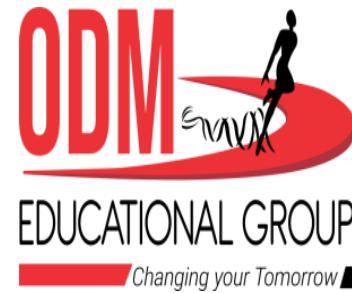




**Complete Exercise 20 A in the copy.**



# Learning Outcomes



## Students are able:

- To know about the time and conversion of the units.



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When we convert smaller units to greater units we **DIVIDE**

## Conversion of seconds into minutes.

Convert 772 sec into minutes

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 \hline
 & & & 5 & 2
 \end{array}$$

$$\begin{array}{r}
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 \overset{4}{4}
 \end{array}$$

TIME IS  
PRECIOUS

## EXERCISE 20 A

### 4. CONVERT

#### a. 812 sec into minutes and seconds

$$60 \text{ sec} = 1 \text{ min}$$

$$812 \text{ sec} = 812 \div 60 =$$

**13 mins 32 sec**

#### d. 745 hours into days

$$24 \text{ hours} = 1 \text{ day}$$

$$745 \text{ hours} = 745 \div 24 =$$

**31 days 1 hours**

#### e. 1024 mins into hours

$$60 \text{ min} = 1 \text{ hr}$$

$$1024 \text{ mins} = 1024 \div 60 =$$

**17 hrs 4 mins**



TIME IS  
PRECIOUS

## EXERCISE 20 A

### 5. CONVERT

#### a. 512 days into weeks

$$7 \text{ days} = 1 \text{ week}$$

$$512 \text{ days} = 517 \div 7 =$$

**73 weeks 1 days**

#### c. 52 months into years and months

$$12 \text{ months} = 1 \text{ year}$$

$$52 \text{ months} = 52 \div 12 =$$

**4 years 4 months**

#### e. 342 days into months and days

$$30 \text{ days} = 1 \text{ month}$$

$$342 \text{ days} = 342 \div 30 =$$

**11 months 12 days**



TIME IS  
PRECIOUS

## EXERCISE 20 A

### 6. CONVERT

a. 16 hrs 600 seconds into minutes

$$1 \text{ hr} = 60 \text{ minutes}$$

$$16 \text{ hours} = 16 \times 60 = 960 \text{ minutes}$$

$$60 \text{ seconds} = 1 \text{ min}$$

$$600 \text{ sec} = 600 \div 60 = 10 \text{ min}$$

$$16 \text{ hrs 600 seconds} = 960 + 10 =$$

**970 minutes**

d. 9 days 420 minutes into hours Changing your Tomorrow

$$1 \text{ day} = 24 \text{ hours}$$

$$9 \text{ days} = 24 \times 9 = 216 \text{ hours}$$

$$60 \text{ min} = 1 \text{ hr}$$

$$420 \text{ min} = 420 \div 60 = 7 \text{ hr}$$

$$9 \text{ days 420 minutes} =$$

$$216 + 7 \text{ hours} = \text{ **223 hours**}$$





# Learning Outcomes

## **Students are able:**

- **To know about the time and conversion of the units.**



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EXERCISE 20 B

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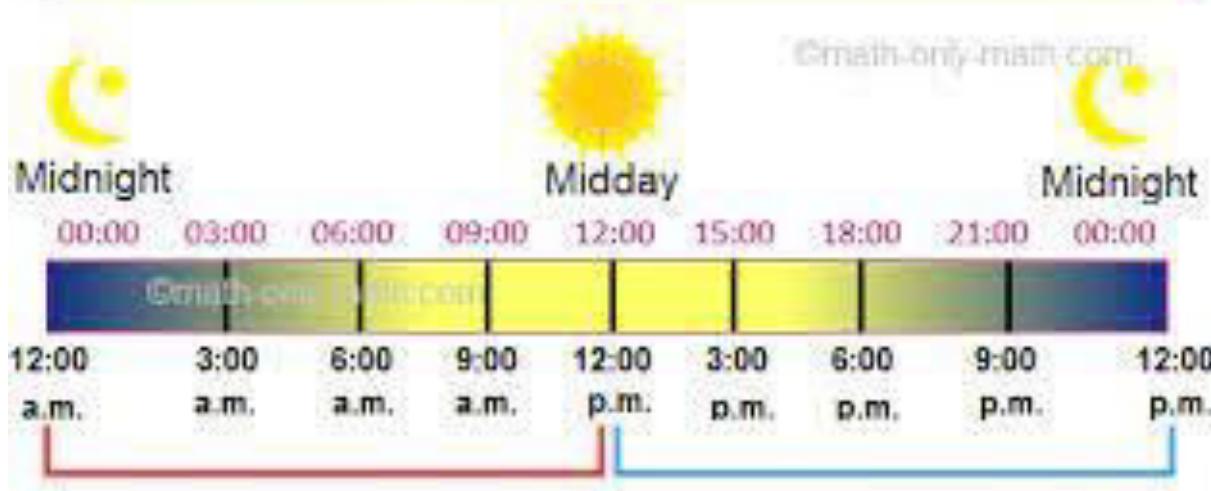
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## USE OF A.M. & P.M.

### Expressing Time in a.m. and p.m.



- Starting from midnight 12 to 12 noon, the time is written as **A.M. or a.m.**
- Time from 12 noon to midnight 12 is written as **P.M. or p.m.**



## USE OF A.M. & P.M.

Morning 10 o'clock is written as **10 : 00 a.m.**

Night 10 o'clock is written as **10 :00 p.m.**

12 o'clock at day is written as **12 noon.**

12 o'clock at night is written as **12 midnight.**

- We follow **12 hour** clock, which follows **a.m.** and **p.m.**
- We also follow **24 hour** clock , which **doesn't** follow **a.m.** or **p.m.**





## CONVERSION OF 12 HOUR CLOCK TIME TO 24 HOUR CLOCK TIME.

□ If the time is a.m. **replace a.m. by hour.**

Ex – 4:00 a.m. will be written as 4 : 00 hour.

□ If the time is p.m., **add 12** to the time and **replace p.m. by hour.**

Ex – 4:00 p.m. will be written as  $4 + 12 = 16:00$  hour.

Add 12 to the hours between 1:00 and 11:59 PM and eliminate "PM"

1:00 PM = 13:00	7:00 PM = 19:00
2:00 PM = 14:00	8:00 PM = 20:00
3:00 PM = 15:00	9:00 PM = 21:00
4:00 PM = 16:00	10:00 PM = 22:00
5:00 PM = 17:00	11:00 PM = 23:00
6:00 PM = 18:00	



## CONVERSION OF 24 HOUR CLOCK TIME TO 12 HOUR CLOCK TIME.

□ If the time is less than 12 **replace hour by a.m.**

Ex – 4 : 00 hour will be written as 4:00 a.m.

□ If the time is more than 12 **subtract 12** to the time and **replace hour by p.m.**

Ex – 18 : 00 hour will be written as  $18:00 - 12 = 6:00$  p.m.

Add 12 to the hours between 1:00 and 11:59 PM and eliminate "PM"

1:00 PM = 13:00	7:00 PM = 19:00
2:00 PM = 14:00	8:00 PM = 20:00
3:00 PM = 15:00	9:00 PM = 21:00
4:00 PM = 16:00	10:00 PM = 22:00
5:00 PM = 17:00	11:00 PM = 23:00
6:00 PM = 18:00	



## EXERCISE 20 – B

Change into 24 hr clock time

a) 7 : 50 p.m. = 7 : 50 + 12 = **19 : 50 hours**

b) 5 : 00 a.m. = **5 : 00 hours**

c) 12 midnight = **00 : 00 hours**

d) 8 : 45 a.m. = **08: 45 hours**

e) 2 : 20 p.m. = 2 : 20 + 12 = **14 : 20 hours**

f) 4 : 40 p.m. = 4 : 40 + 12 = **16 : 40 hours**

g) 9 : 35 a.m. = **09 : 35 hours**

h) 6 : 30 a.m. = **06 : 30 hours**

Add 12 to the hours between 1:00 and 11:59 PM and eliminate "PM"

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- To know about the time and conversion of the units using 24 hour clock.



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EXERCISE 20 B

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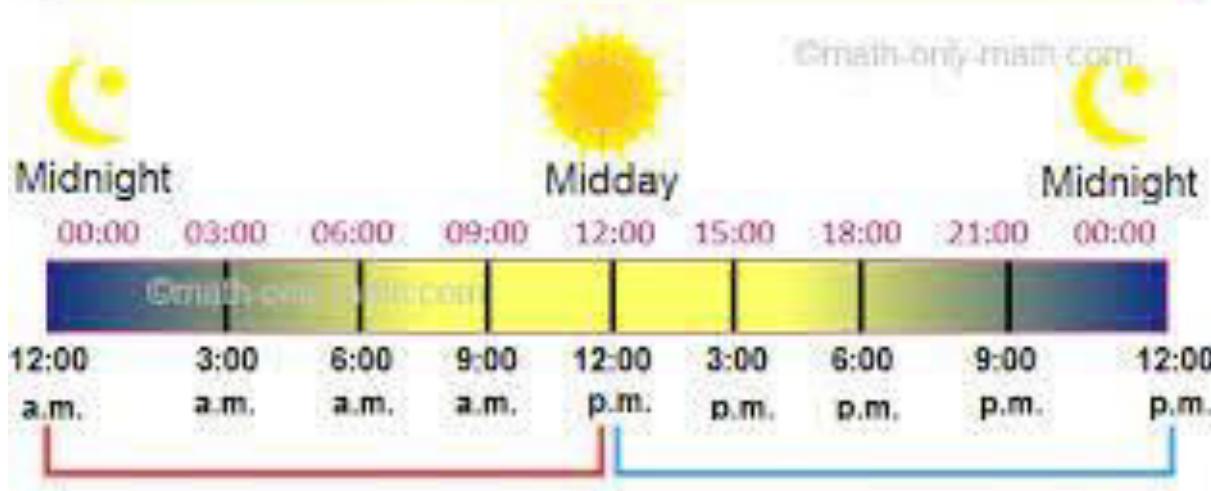
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Ex – 4:00 p.m. will be written as  $4 + 12 = 16:00$  hour.

Add 12 to the hours between 1:00 and 11:59 PM and eliminate "PM"

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Add 12 to the hours between 1:00 and 11:59 PM and eliminate "PM"

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5:00 PM = 17:00	11:00 PM = 23:00
6:00 PM = 18:00	



## EXERCISE 20 – B

2. Change into 12 hr clock time

- a)  $16 : 30$  hours =  $16 : 30 - 12 = \mathbf{4 : 30 \text{ p.m.}}$
- b)  $23 : 50$  hours =  $23 : 50 - 12 = \mathbf{11 : 50 \text{ p.m.}}$
- c)  $10 : 45$  hours =  $\mathbf{10 : 45 \text{ a.m.}}$
- d)  $18 : 15$  hours =  $18 : 15 - 12 = \mathbf{6 : 15 \text{ p.m.}}$
- e)  $12 : 00$  hours =  $\mathbf{12 \text{ noon}}$
- f)  $00 : 00$  hours =  $\mathbf{12 \text{ midnight}}$
- g)  $05 : 00$  hours =  $\mathbf{5 : 00 \text{ a.m.}}$
- h)  $16 : 00$  hours =  $16 : 00 - 12 = \mathbf{4 : 00 \text{ p.m.}}$

Add 12 to the hours between 1:00 and 11:59 PM and eliminate "PM"

1:00 PM = 13:00	7:00 PM = 19:00
2:00 PM = 14:00	8:00 PM = 20:00
3:00 PM = 15:00	9:00 PM = 21:00
4:00 PM = 16:00	10:00 PM = 22:00
5:00 PM = 17:00	11:00 PM = 23:00
6:00 PM = 18:00	



## EXERCISE 20 – B

3. A train reached at New Delhi railway station at 4:45 p.m.. What is the time in a 24 hour clock?

## Solution.

4:45 p.m. in 24 hours clock =  $4 : 45 + 12 = \text{16 : 45 hours.}$



4. Rahul comes back from school at 14: 30 hours. What is the time in a 12 hour clock?

## Solution.

$$14 : 30 \text{ hours in 12 hours clock} = 14 : 30 - 12 = \text{2 : 30 p.m.}$$





# Learning Outcomes

## Students are able:

- To know about the time and conversion of the units using 24 hour clock.



**THANKING YOU**  
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**GROUP**

**CLASS : V**

**SUBJECT : MATHEMATICS**

**CHAPTER NUMBER: 20**

**CHAPTER NAME : TIME**

**SUB-TOPIC : ADDITION AND SUBTRACTION OF  
TIME**

**EXERCISE 20 C**

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## LEARNING OBJECTIVE :

**Enable learners :**

- **To add and subtract time units.**



## ADDITION & SUBTRACTION

- Arrange **hours, minutes, seconds** in columns then add as usual.
- If the sum of minutes or sec is **more than 60** then re-group.
- In case of subtraction, if we borrow **1 hour** it will become **60 minutes** and **1 min** will become **60 sec**.

Add 15 hour 15 min 23 sec and 11 hours 30 min 56 sec

$$\begin{array}{r} 23 \\ + 56 \\ \hline 79 \end{array}$$

H	MIN	SEC
15	15	23
+	11	56
<b>26</b>	<b>46</b>	<b>19</b>

$$79 \text{ sec} - 60 \text{ sec} = 19 \text{ sec}$$

We can write 26 hours as 1 day 2 hours.

**Ans. 1 day 2 hours 46 min 19 sec**



## ADDITION & SUBTRACTION

**Subtract 18 hours 56 min 55 sec from 45 hours 25 min 20 sec**

**ROUGH**

H	MIN	SEC
<del>44</del>	<del>84</del>	
<del>45</del>	<del>24</del>	
<del>28</del>	<del>25</del>	<del>20</del>
<hr/>	<hr/>	<hr/>
<b>16</b>	<b>28</b>	<b>25</b>

1 min is borrowed from min column  
Which is 60 sec.  
So **20 + 60 = 80 sec**

**ANS. 16 hr 28 min 25 sec**

1 hour is borrowed from hour column  
Which is 60 min.  
So **24 min + 60 min = 84 min**

### EXERCISE 20 – C

1. ADD .

a. 6 hrs 20 min and 5 hrs 36 mins

H	MIN
06	20
+ 05	36
<b>11</b>	<b>56</b>

b. 15 hrs 35 min and 7 hours 45 min

H	MIN
15	35
+ 07	45
<b>23</b>	<b>20</b>

$  \begin{array}{r}  35 \\  + 45 \\  \hline  80 \\  - 60 \\  \hline  20  \end{array}  $
---

c. 25 hours 44 min and 16 hrs 36 min

H	MIN
1	44
+ 25	36
<b>42</b>	<b>20</b>

**1 day 18 hrs 20 min**

$  \begin{array}{r}  44 \\  42 \\  - 24 \\  \hline  18  \end{array}  \qquad  \begin{array}{r}  + 36 \\  \hline  80 \\  - 60 \\  \hline  20  \end{array}  $
--



## EXERCISE 20 – C

e. 16 min 29 sec and 20 min 45 sec

MIN	SEC
16	29
20	45
<hr/>	
<b>37</b>	<b>14</b>

$$\begin{array}{r} 29 \\ + 45 \\ \hline 74 \\ - 60 \\ \hline 14 \end{array}$$



## EXERCISE 20 – C

g. 2 hr 40 min , 5 hrs 30 mins , 7 hours 50 mins

HOUR	MIN
2	
02	40
+ 05	30
07	50
<hr/> <b>16</b>	<b>00</b>

$$40 + 30 + 50 = 120$$

As 120 min is 2 hrs.



## EXERCISE 20 – C

### 2. ADD

a. 15 years 4 months and 20 years 2 months

YEAR	MONTH
+ 15	04
20	02
<b>35</b>	<b>06</b>

c. 10 years 8 months and 6 years 4 months

YEAR	MONTH
1	
+ 10	08
06	04
<b>17</b>	<b>00</b>

b. 12 years 6 months and 21 years 8 months

YEAR	MONTH
1	
+ 12	06
21	08
<b>34</b>	<b>02</b>

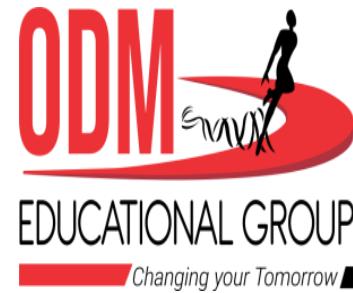
$$6 + 8 = 14 \text{ months}$$

$$14 - 12 = 2 \text{ months}$$





# Learning Outcomes



## **Students are able:**

- To add and subtract the different units of time.



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**SUB-TOPIC : ADDITION AND SUBTRACTION OF TIME**

**EXERCISE 20 C NO.4 TO 9**

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## LEARNING OBJECTIVE :

**Enable learners :**

- **To add and subtract time units.**

## EXERCISE 20 C

4.

a. What is the time 2 hr 25 min before 9:10 p.m. ?

2 hr 25 min before 9:10 p.m. = **6 : 45 p.m.**

$$\begin{array}{r} 8 & 70 \\ 9 & : 10 \\ - 2 & : 25 \\ \hline 6 & 45 \end{array}$$

b. What is the time 5 hrs after 10:00 p.m.?

5 hrs after 10:00 p.m. = **3 : 00 a.m.**

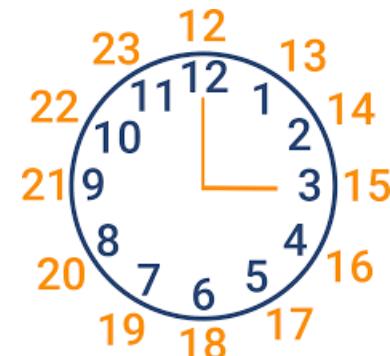
One day has 24 hours so =  $27 \text{ hr} - 24 \text{ hr} = \text{03: 00 hr}$

$$\begin{array}{r} 22 : 00 \\ + 05 : 00 \\ \hline 27 : 00 \end{array}$$

c. What time was it 4 hrs 25 min before 4:35 p.m. ?

4 hrs 25 min before 4:35 p.m. = **12 : 10 p.m.**

$$\begin{array}{r} 16 : 35 \\ - 4 : 25 \\ \hline 12 10 \end{array}$$



## EXERCISE 20 C

d. What time will it be 5 hrs after 8:30 p.m.?

5 hours after 8:30 p.m. = **1 : 30 a.m.**

One day has 24 hours so,

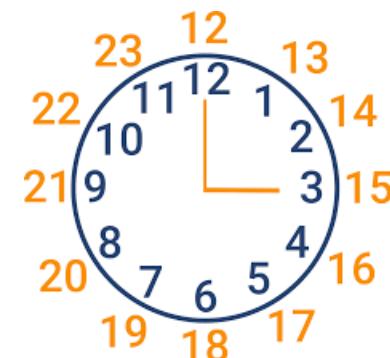
$25 : 30 - 24 = 01 : 30$  hour

$$\begin{array}{r} 20 : 30 \\ + 5 \\ \hline 25 : 30 \end{array}$$

e. What time will it be 2 hours 25 minutes after 6:40 p.m.?

2 hrs 25 minutes after 6 : 40 p.m. = **9 : 05 p.m.**

$$\begin{array}{r} 6 : 40 \\ + 02 : 25 \\ \hline 9 : 05 \end{array}$$





## EXERCISE 20 C

5. Find the time interval between 6 :15 a.m. And 4 :10 p.m.

$$6 :15 \text{ a.m.} = 06:15 \text{ hour}$$

$$4 :10 \text{ p.m.} = 16 :10 \text{ hour}$$

$$\begin{array}{r} 15 \ 70 \\ - 16 :10 \\ \hline 9 \ 55 \end{array}$$

The time interval between 6 : 15 a.m. And 4 :10 p.m. = **9 Hours 55 mins**

6. Find the time interval from 9:45 a.m. To 2 :30 p.m.

$$9 :45 \text{ a.m.} = 09 :45 \text{ hour}$$

$$2 :30 \text{ p.m.} = 14 :30 \text{ hour}$$

The time interval from 9 : 45 a.m. And 2 :30 p.m. = **4 hours 45 minutes.**

$$\begin{array}{r} 13 \ 90 \\ - 14 :30 \\ \hline 09 :45 \\ \hline 04 \ 45 \end{array}$$



## EXERCISE 20 C

7. Simran started her morning walk at 5:50 a.m. She came back at 7 :00 a.m.

a. For how long did she walk?

Time she started walking= 5 :50 a.m.

Time she returned = 7 : 00 am.

Duration of her walk = **1 hour 10 minutes**

Thus she walked for **1 hour 10 minutes**.



$$\begin{array}{r} 6 \quad 60 \\ - 7 : 00 \\ \hline 1 \quad 10 \end{array}$$

b. Write 3 advantages of morning walk.

- i. Improves digestion
- ii. Regulates blood pressure
- iii. Keeps our heart healthy.



## EXERCISE 20 C

8. A train leaves Delhi for Kolkata at 6 : 40 a.m. In the morning. It takes 16 hours 50 minutes to reach Kolkata.

a. At what time will the train reach Kolkata? Give the answer in a.m. Or p.m.

The train leaves Delhi at = 6 : 40 a.m.

Time it takes to reach Kolkata = 16 hours 50 minutes

Time it reached Kolkata = 23 : 30 hours =

= **11: 30 p.m.**

Thus, the train will reach Kolkata at **11: 30 p.m.**



$$\begin{array}{r}
 1 \ 1 \\
 0 \ 6 : 4 \ 0 \\
 + \ 1 \ 6 : 5 \ 0 \\
 \hline
 2 \ 3 : 3 \ 0
 \end{array}$$

ROUGH

$$\begin{array}{r}
 40 + 50 = \\
 90 \text{ min}
 \end{array}$$

$$\begin{array}{r}
 90 \text{ min} - 60 \text{ min} \\
 = 30 \text{ min}
 \end{array}$$



## EXERCISE 20 C

b. Assertion : Some departments like the railways and airlines etc. use 24-hour clock time



Reason :- to avoid the confusion of using a.m. or p.m.

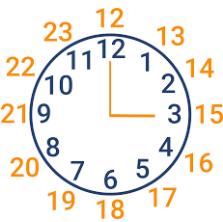
Choose the correct alternative.

i. Both A and R are true and R is the correct explanation of A.

i. Both A and R are true but R is not the correct explanation of A.

i. A is false but R is true.





## EXERCISE 20 C

9. Sandhya's school starts at 7 : 30 a.m. And ends at 13:00 hours.

a. Find the total working hours of her school.

School starts at = 7 : 30 a.m. = **07 : 30 hour**



School ends at = 13 : 00 hours

The total working hour = **5 hours 30 minutes**

Thus the total working hours of Sandhya's school is **5 hours 30 mins.**

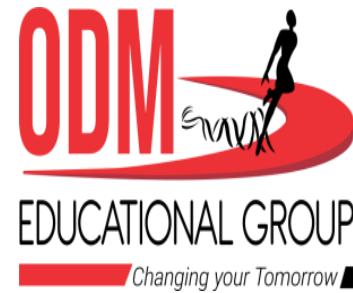
$$\begin{array}{r} 12 \quad 60 \\ \underline{-} \quad 13 : 00 \\ - \quad 07 : 30 \\ \hline 05 \quad 30 \end{array}$$

b. Share 2 tips so that Sandhya will never be late for her school.

- i. Sleep early , so you can get up early.
- i. Make sure to follow the alarm clock.



# Learning Outcomes



## **Students are able:**

- To add and subtract time units.



**THANKING YOU  
ODM EDUCATIONAL  
GROUP**