Calendar

Ordinary Year - has 365 days = 52X7 + 1

Leap Year - has 366 days = 52X7 + 2

- every year divisible by 4 is a leap yr, if it is not a century
- every century divisible by 400 is a leap yr.

Odd days - number of days more than the complete weeks are called odd days.

Counting Odd days

- 1 ordinary year = 365 days = 52 weeks + 1 day = 1 odd day
- 1 leap year = 366 days = 52 weeks + 2 days = 2 odd day
- 100 years = 76 ordinary years + 24 leap yrs

(76X1 + 24X2) odd days = 124 odd days

= 17 weeks + 5 days = 5 odd days.

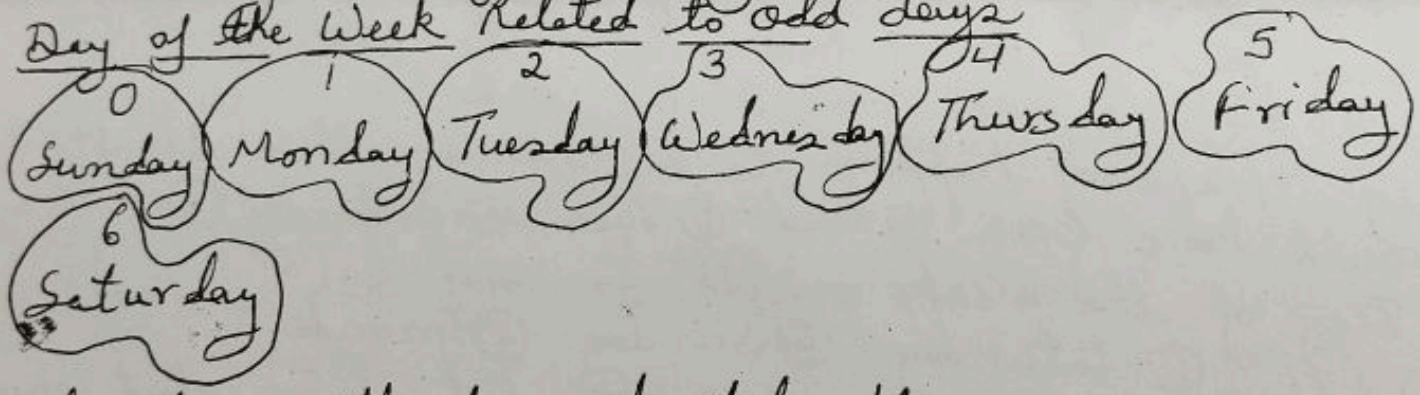
Number of odd days in 100 yrs = 5

Number of odd days in 200 yrs = 5X2 = 10 => 3 odd day

Number of odd days in 300 yrs = 5X3 = 15 = 7X2+1 = 1 odd

Number of odd days in 400 yrs = 5X4+1 = 21 = 0 odd days.

Day of the Week Related to odd days



Calendar will be repeated after

if it is leap yr = +28 yrs, nxt to leap yr = +6 yrs

nxt nxt to leap yr = +11 yrs, before leap yr = +11 yrs.

Day Finder

$$f = k + \left[\frac{13m-1}{5}\right] + D + \left[\frac{D}{4}\right] + \left[\frac{C}{4}\right] - 2XC$$

Year = $X_1X_2Y_1Y_2$ $C = X_1X_2$ $D = Y_1Y_2$

m => March = 1, April = 2 - - - - - Jan = 11, Feb = 12

If m = 11 or 12 (Jan or feb) D should be taken as D-1

[ ] = greatest integer [3.27] = 3

k = date, f = odd days.

① find the day of the week on
(i) 16th July 1776 (ii) 1 January 1802
② Today is Sunday. Day after 64 days will be Mon
③ May 3, 1993 was Monday. Day on May 3, 1992 was Sunday
④ Which year will have same calendar as 1981 1987
⑤ Day on 15th Aug 1947 is Friday
⑥ Year next to 1996 having same calendar is 2024

Day of the week on
(A) 12th January 1979 (a) Wed (b) Thur (c) Fri (d) Sat
(B) 15 July 1701 (a) wed (b) Thur (c) Mon (d) Tues
(C) 17 feb 1115 (a) Tues (b) Thur (c) Sunday (d) Wed

(D) On what dates of July 2004, did Monday fall
(a) 4, 11, 18, 25 (b) 5, 12, 19, 26 (c) 1, 8, 15, 22 (d) none of these.
(E) 17th March of a leap yr falls on Sunday (2024), what would be the day on 28th March of nxt yr.
(a) fri (b) Thur (c) Sat (d) Sunday
(F) Year next to 2007 having same calendar is
(a) 2035 (b) 2013 (c) 2018 (d) 2050
(G) If 9/12/2001 happens to be Sunday, then 9/12/197. would have been (a) Wed (b) Tues (c) Saturday (d) Thurs
(H) Day of the week on 1st January 2010
(a) fri (b) saturday (c) sunday (d) monday.
(I) If 29th feb of a year falls on Saturday, what would be the day on 31st December of that year.
(a) fri (b) Saturday (c) Thurs (d) Wed
(J) If the seventh day of the month is three days earlier than friday, what day will it be on the nineteenth day of the month
(a) Sun (b) Tues (c) Wed (d) Mon
(K) Today is Wednesday. what will be the day after 94 days (a) Mon (b) Wed (c) fri (d) Sun
(L) If 25th August is Thursday, number of Mondays in that month is (a) 2 (b) 3 (c) 4 (d) 5

Clocks (A)

→ Angle between any two consecutive divisions = $360°/12 = 30°$

→ Angular value of a minute = $30°/5 = 6°$

→ Speed of minute hand = minute hand travels 360° in 60 minutes, so speed = $360°/60 = 6°$ per minute

→ Speed of hour hand = an hour hand travels 30° in an hour so speed = $30°/60 = (1/2)°$ per minute.

→ Angle θ between hands of a clock

$$\theta° = \left| \frac{11}{2}m - 30h \right|$$

(A) Angle between minute hand and hour hand at 5:30

(B) At what time between 3 & 4 o'clock hands makes an angle of 10°.

(C) Time between 2 pm and 3 pm when the two hands of clock will point towards opposite sides but will be in straight line.

(D) At what time between 2 and 3 o'clock will hands of a clock together.

(E) At what time between 5 and 6 o'clock are hands of a clock, 3 minutes apart.

(F) Angle between hands when time is 3:25

(G) In 16 minutes, minute hand gains over the hour hand by

(H) How many degrees will minute hand move in the same time in which second hand move 480°.

(I) A clock is started at noon. By 10 minutes past 5, hour hand has turned through.

(J) If hour hand of a clock moves by 18° then by how many degrees does minute hand move during the same time.

CLOCKS

1. How many times do the hands of A clock coincide in A day
   (a) 20 (b) 22 (c) 24 (d) 11

2. What is the angle covered by the minute hand in 22 minutes.
   (a) 66° b) 110° (c) 132° (d) 220°

3. By how many degrees does an hour hand move in one quarter of an hour.
   (a) 5° b) 7.5° (c) 10° (d) 12.5°

4. By how many degrees will the minute hand moves in the same time in which the hour hand moves 6°.
   (a) 54° b) 84° (c) 72° (d) 60°

5. When the clock shows 3 hours 14 minutes, what is the angle between the hands of the clock.
   (a) 10° (b) 13° (c) 16° (d) 19°

6. At what time between 9 and 10'O clock will the hands of A clock be together in same direction.
   (a) 45 mins past 9 (b) $49\frac{1}{11}$ mins past 9 (c) 50 mins past 9 (d) $48\frac{2}{11}$ mins past 9

7. At what time between 7 and 8'O clock will the hands of A clock be in same straight line but not together.
   (a) 5 mins past 7 (b) $5\frac{2}{11}$ mins past 7 (c) $5\frac{5}{11}$ mins past 7 (d) $5\frac{3}{11}$ mins past 7

8. What is the angle between hands of the clock, when it shows 4 : 20 pm.
   (a) 0° (b) 10° (c) 20° (c) 30°

9. What is the angle between the hands of the clock when it shows 40 minutes past 6.
   (a) 40° (b) 70° (c) 80° (c) 100°

10. An accurate clock shows 8 O'clock in the morning. Through how many degrees will the hour hand rotate when the clock shows 2 O'clock in the afternoon?
    (a) 144° (b) 150° (c) 168° (c) 180°

11. At what time between 4 and 5'O clock are the hands of A clock in the opposite directions
    (a) $52\frac{3}{11}$ mins past 4'O clock (b) $54\frac{6}{11}$ mins past 4'O clock
    (c) $51\frac{7}{11}$ mins past 4'O clock (d) $58\frac{2}{11}$ mins past 4'O clock

12. If the seconds hand moves by 240°, then by how many degrees does the minute hand moye in same direction.
    (a) 2° (b) 3° (c) 4° (d) 6°

13. At what time in minutes between 8 and 9'O clock, both needles will coincide
    (a) $43\frac{6}{11}$ mins (b) 40 mins (c) $44\frac{7}{11}$ mins (d) $43\frac{7}{11}$ mins

Answers 1-b, 2-c, 3-b, 4-c, 5-b
6-b, 7-c, 8-b, 9-a, 10-d
11-b, 12-c, 13-d

Clocks II

Mirror image → Subtract time from 11.60 or 23.60

Mirror image of 10.20 → 11.60 − 10.20 = 1.40

22.60 → 23.60 − 22.60 = 1.00

Water image → Subtract time from 17.90

Water image of 5.20 → 17.90 − 5.20 = 12.70

= 13.10 = 1:10.

A. A clock gains 15minutes in a day. It is set right at 12 noon, What time will it show at 4am next day. a. 4:10am b. 4:45am c. 4:50am d. 4:20am

B. A clock gains 5 mins in 24 hours. It was set right at 10 am on Monday. What will be the true time when clock indicates10:30 am on next Sunday.
a. 10am b. 11am c. 25 mins past 10 d.5 mins past 11

C. A watch which gains uniformly is 5 minutes slow at 8"o clock in the morning on Sunday and it is 5 minutes 48 seconds fast at 8: 00 pm on following Sunday. When it was correct.
a. 15 mins past 7pm on Wednesday b. 8pm on Wednesday
c. 20 mins past 7 pm on Wednesday d. 7pm on Tuesday

D. A watch which gains uniformly was observed to be 6 minutes slow at 9am on Tuesday and 3 minutes fast at 12 noon on the subsequent Wednesday. When did the watch show the correct time.
a. 9pm on Tuesday b. 3am on Wednesday
c. 12 am on Wednesday d. 6am on Wednesday

E. A clock set right at 4am. Clock loses 20 minutes in 24 hrs. What will be the correct time when the clock indicates 3am on 4th day.
a. 3am b. 4am c. 4pm d. 5pm

F. A clock is set right at 5am. Clock loses 16 mins in 24 hours. What will be the true time when clock shows 10 pm on 4th day.
a. 10pm b. 9pm c. 11pm d. 10:30 pm

G. A watch gains 5 seconds in 3 mins and was set right at 8am. If it shows 5:15 in the afternoon on the same day, what is the correct time.
a. 4:30pm b. 4pm c. 5pm d. 6pm

H. Two clocks are showing correct time at 4:00 pm. One clock loses 3.5 minutes in an hour, while the other gains 2.5 minutes in one hour. At 10:00 pm on the same day, by how much time will the two clocks differ.
(a) 12 minutes (b) 24 minutes (c) 36 minutes (d) 6 minutes

I. There are two clocks on A wall, both set to show the correct time at 5.00 pm. The clock loses 2 minutes and 3 minutes respectively in an hour. If the clock which loses 2 minutes in one hour shows the time as 9.50 pm on the same day, then what time does the other clock show.
(a) 9.30 pm (b) 9.40 pm (c) 9.45 pm (d) 10.15 pm

① A clock shows 10.00. when time is 22.00, by what degree the hour hand rotates ⓐ 180 ⓑ 175 ⓒ 240 ⓓ 360

② A clock shows 10.00 am, what time it will be showing if hour hand rotates for 180° ⓐ 1pm ⓑ 6pm ⓒ 4pm ⓓ 10pm

③ Angle between hour hand & minute hand of a clock at 3.30
ⓐ 65° ⓑ 70° ⓒ 75° ⓓ 80°

④ At what time between 4 & 5 o clock will hands of a clock coincide ⓐ $21\frac{9}{11}$ mins past 4 ⓑ $20\frac{7}{11}$ mins past 4
ⓒ $19\frac{9}{11}$ mins past 4 ⓓ $22\frac{9}{11}$ mins past 4.

⑤ At what time between 6am & 7am will the minute hand and hour hand of clock make an angle closest by 60°.
ⓐ 6.22am ⓑ 6.27am ⓒ 6.38am ⓓ 6.45am.

⑥ At what time between 1 and 2 o clock will hands of a clock makes an angle of 180°.
ⓐ 35(5/11) mins past 1 ⓑ 40 mins past 1
ⓒ 50(4/11) mins past 1 ⓓ 38(2/11) mins past 1

⑦ At what time between 6 and 7 are hands of a clock 8 mins apart ⓐ 24mins past 6 ⓑ 21 mins past 6
ⓒ 18 mins 6 ⓓ 20 mins past 6

⑧ A clock is set right at 8am. Clock gains 10 mins in 24 hours. What will be the true time when clock indicates 1 pm on the following day.
ⓐ 12.45 ⓑ 12:48 ⓒ 12:40 ⓓ 12:54

⑨ A watch which gains uniformly was observed to be 1 min slow at 8 am on a day. At 6pm on same day it was 1 min fast. At what time it show correct time ⓐ 12 noon ⓑ 1 pm ⓒ 2pm ⓓ 4pm.

⑩ At 25 mins past 10 in the night, angle formed between two hands of a clock ⓐ 120° ⓑ 126.45° ⓒ 146.5° ⓓ 162.5°

⑪ A clock gains 20 seconds for every 3 hours of time. If clock is set at a correct time of 2am on friday what would it indicate at 6.30pm, Saturday.
ⓐ 6:32:00 ⓑ 6:32:46 ⓒ 6:34:30 ⓓ 6:38:56

⑫ Mirror image of a watch at 12.10
ⓐ 11.60. ⓑ 11.50 ⓒ 1:10 ⓓ 11.40

⑬ Time in clock is 3:13, what time will appear in water
ⓐ 3:17 ⓑ 2:17 ⓒ 3:23 ⓓ 2:13

⑭ Angle made by hour hand in 36 secs ⓐ 120° ⓑ 3° ⓒ $\left(\frac{3}{10}\right)^\circ$ ⓓ $\left(\frac{10}{3}\right)^\circ$

Chain Rule

① 36 men complete a piece of work in 18 days. In how many days will 27 men complete the same work (24)

② In a dairy farm, 40 cows eat 40 bags of husk in 40 days. In how many days one cow will eat one bag of husk (40)

③ If the wages of 6 men for 15 days be Rs 2100, then find the wages of 4 men for 12 days (2520)

④ If 15 men, working 9 hours a day, can reap a field in 16 days, in how many days will 18 men reap the field working 8 hours a day (15)

⑤ If 8 men can reap 80 hectares in 24 days, then how many hectared can 36 men reap in 30 days (450)

⑥ A fort had provision of food for 150 men for 45 days. After 10 days, 25 men left the fort. Number of days for which the remaining food will last is (42)

⑦ A fort had provisions for 450 men for 80 days. After 10 days, 50 more men arrived. How long will the remaining food last at same rate (63)

⑧ If 5 men or 9 women can do a piece of work in 19 days, then in how many days will 3 men and 6 women do the same work (15)

⑨ A job is completed by 5 men or 7 women in 40 days, then in how many days thrice the job as previous will be completed by 5 men and 3 women (84)

⑩ A contractor undertakes to build a well 1000 mt long in 50 days. He employs 56 men but at the end of 29 days, he finds that only 448 mt of well is built. How many extra men must the contractor employ so that wall is completed in time (25)

⑪ A contractor undertakes to finish a certain work in 124 days and employed 120 men. After 64 days, he found that he had already done (2/3) of the work. How many men can be discharged so that work may finish in time (56)

CHAIN RULE

If the current age is x, then age n years later/hence = x + n.
If the current age is x, then age n years ago = x - n.

4 mat-weavers can weave 4 mats in 4 days. At the same rate, how many mats would be woven by 8 mat-weavers in 8 days ?
(a) 4 (b) 8 (c) 12 (d) 16 (A)

If 9 examiners can examine a certain number of answer books in 12 days, working 5 hours a day; for how many hours a day would 4 examiners have to work in order to examine twice the number of answer books in 30 days ?
(a) 6 (b) 8 (c) 9 (d) 10 (B)

If 17 labourers can dig a ditch 20 m long in 18 days, working 8 hours a day; how many more labourers should be engaged to dig a similar ditch 39 m long in 6 days, each labourer working 9 hours a day ?
(a) 34 (b) 51 (c) 68 (d) 85 (C)

20 men complete one-third of a piece of work in 20 days. How many more men should be employed to finish the rest of the work in 25 more days ?
(a) 10 (b) 12 (c) 15 (d) 20 (D)

If 18 binders bind 900 books in 10 days, how many binders will be required to bind 660 books in 12 days ?
(a) 22 (b) 14 (c) 13 (d) 11 (E)

In a camp, 95 men had provisions for 200 days. After 5 days, 30 men left the camp. For how many days will the remaining food last now ?
(a) 180 (b) 285 (c) $139\frac{16}{19}$ (d) None of these (F)

A garrison of 500 men had provisions for 27 days. After 3 days a reinforcement of 300 men arrived. For how many more days will the remaining food last now ?
(a) 15 (b) 16 (c) $17\frac{1}{2}$ (d) 18 (G)

A garrison had provisions for a certain number of days. After 10 days, $\frac{1}{5}$ of the men desert and it is found that the provisions will now last just as long as before. How long was that ?
(a) 15 days (b) 25 days (c) 35 days (d) 50 days (H)

39 persons can repair a road in 12 days, working 5 hours a day. In how many days will 30 persons, working 6 hours a day, complete the work ?
(a) 10 (b) 13 (c) 14 (d) 15 (I)

3 pumps, working 8 hours a day, can empty a tank in 2 days. How many hours a day must 4 pumps work to empty the tank in 1 day ?
(a) 9 (b) 10 (c) 11 (d) 12 (J)

If 7 spiders make 7 webs in 7 days, then 1 spider will make 1 web in how many days?
(a) 1 (b) $\frac{7}{2}$ (c) 7 (d) 49 (K)

If 18 pumps can raise 2170 tonnes of water in 10 days, working 7 hours a day, in how many days will 16 pumps raise 1736 tonnes of water, working 9 hours a day ?
(a) 6 (b) 7 (c) 8 (d) 9 (L)

If 12 carpenters, working 6 hours a day, can make 460 chairs in 24 days, how many chairs will 18 carpenters make in 36 days, each working 8 hours a day ?
(a) 1260 (b) 1270 (c) 920 (d) 1380 (M)

15 men take 21 days of 8 hours each to do a piece of work. How many days of 6 hours each would 21 women take, if 3 women do as much work as 2 men ?
(a) 18 (b) 20 (c) 25 (d) 30 (N)

A contractor undertook to do a certain piece of work in 9 days. He employed certain number of men, but 6 of them being absent from the very first day, the rest could finish the work in 15 days. The number of men originally employed were :
(a) 12 (b) 15 (c) 18 (d) 24 (O)

A contractor undertakes to do a piece of work in 40 days. He engages 100 men at the beginning and 100 more after 35 days and completes the work in stipulated time. If he had not engaged the additional men, how many days behind schedule would it be finished ?
(a) 3 (b) 5 (c) 6 (d) 9 (P)

A contractor employed 30 men to do a piece of work in 38 days. After 25 days, he employed 5 men more and the work was finished one day earlier. How many days he would have been behind, if he had not employed additional men ?
(a) 1 (b) $1\frac{1}{4}$ (c) $1\frac{3}{4}$ (d) $1\frac{1}{2}$ (Q)

12 men and 18 boys, working $7\frac{1}{2}$ hours a day, can do a piece of work in 60 days. a man works equal to 2 boys, then how many boys will be required to help 21 m to do twice the work in 50 days, working 9 hours a day ?
(a) 30 (b) 42 (c) 48 (d) 90 (R)

If 3 men or 6 boys can do a piece of work in 10 days, working 7 hours a day; how m days will it take to compete a piece of work twice as large with 6 men and 2 working together for 8 hours a day ?
(a) 6 (b) $7\frac{1}{2}$ (c) $8\frac{1}{2}$ (d) 9 (S)

Answers, A-d, B-c, C-b, D-b, E-d, F-b, G-a, H-d, I-b, J-d,
K-c, L-b, M-d, N-d, O-b, P-b, Q-a, R-b, S-b.

Ayushi, E-16

AGES

Formulas and Quick Tricks for Age Problems
If the current age is x, then n times the age is nx.
If the current age is x, then age n years later/hence = x + n.
If the current age is x, then age n years ago = x - n.
The ages in a ratio a : b will be ax and bx.
If the current age is x, then 1/n of the age is x/n

1. Difference between ages of Meena and Seema is 3yrs and ratio between their ages is 7 : 8. What is the sum of their ages. (45)
2. Present ages of X and Y are in the ratio 5 : 6 respectively. Seven years hence this ratio will become 6 : 7 respectively. What is X' s present age in years ?? (35)
3. The ratio of father's age to son's age is 7 : 3. The product of their ages is 756. The ratio of their ages after 6 years will be (2 : 1)
4. A is two years older than B who is twice as old as C. If total of ages of A, B and C be 27, then how old is B. (10)
5. The age of father 10 years ago was thrice the age of his son. Ten years hence, father's age will be twice that of his son. The ratio of their present ages is (7 : 3)
6. In 10 years ,A will be twice as old as B was 10 years ago. If A is now 9 years older than B, the present age of B is (39).

7. Shyam's age after 15 years will be 5 times his age 5 years back. What is his present age.
   a. 5 b. 10 c. 15 d. 20
8. The ages of two persons differ by 16 years. If 6 years ago, the elder one be 3 times as old as the younger one, find their present ages. a. 14 ,28 b. 14,30 c. 15,30 d. 15,28
9. The product of ages of Ankit and Nikita is 240. If twice the age of Nikita is more than Ankit's age by 4 years, what is Nikita's age. a. 10 b. 11 c. 12 d. 13
10. The present age of a father is 3 years more than three times the age of his son. Three years hence, father's age will be 10 years more than twice the age of the son, present age of father is a. 30 b. 31 c. 32 d. 33
11. Rohit was 4 times as old as his son 8 years ago. After 8 years, Rohit will be twice as old as his son,what are their present ages. a. 15,40 b. 16,40 c. 16,41 d. 15,41
12. Abhay's age after 6 years will be three – seventh of his father's age. Ten years ago, the ratio of their ages was 1 : 5. What is Abhay's father's age at present.
    a. 40 b. 60 c. 50 d. 100
13. The ratio of present ages of two brothers is 1 : 2 and 5 years back, the ratio was 1 : 3. What will be the ratio of their ages after 5 years. a. 1:4 b. 2:3 c. 3:5 d. 5:6
14. Eighteen years ago , a father was three times as old as his son. Now the father is only twice as old as his son. Sum of present ages of son and father is a. 54 b. 72 c. 105 d. 108

15. Father is aged three times more than his son Ronit. After 8 years , he would be two and a half times of Ronit's age. After further 8 years , how many times would he be of Ronit's age. a. 2 times b. 2.5 c. 2.75 d. 3 times

16. Jayesh is much younger to Anil as he is older to Prashant. If the sum of the ages of Anil and Prashant is 48 years,what is the age of Jayesh. a. 20 b. 24 c. 30 d. 36

17. If 6 years are added to 15 times Niru's age, we obtain his grandmother's age. If his grandmother's age is 66 years, then the age of Niru's is a. 1 b. 3 c. 2 d. 4

18. The average age of 8 men increases by 2 years when two women are included in place of two men of ages 20 and 24 years. Find the average age of the women?
A. 18 years B. 24 years C. 30 years D. 36 years

19. Mohan correctly remembers that his father's birthday is before 20th January but after 16th January, whereas his sister correctly remembers that their father's birthday is after 18th January but before 23rd January. On which date in January is definitely their father's birthday? A. 18th B. 19th C. 20th D. Missing data

20. The average age of husband, wife and their child 3 years ago was 27 years and that of wife and the child 5 years ago was 20 years. The present age of the husband is:
A. 35 years B. 40 years C. 45 years D. 55 years

21. A is 2 years older than B who is twice as old as C. If the total of the ages of A, B and C be 27, then how old is B? A. 7 years B. 8 years C. 9 years D. 10 years

22. A person's present age is two-fifth of the age of his mother. After 8 years, he will be one-half of the age of his mother. How old id the mother at present?
A. 32 years B. 36 years C. 40 years D. 48 years

23. The total age of A and B is 12 years more than the total age of B and C. C is how many years younger than A? A. 12 B. 24 C. C is elder than A D. Data inadequate

24. A father said to his son, 'I was as old as you are at present at the time of your birth.' If the father's age is 38 years now, the son's age five years back was:
A. 14 years B. 19 years C. 33 years D. 38 years

25. A person was asked to state his age in years. His reply was, 'Take my age three years hence, multiply it by 3 and then subtract three times my age three years ago and you will know how old I am.' What was the age of the person?
A. 18 years B. 20 years C. 24 years D. 32 years

26. The sum of the ages of a son and father is 56 years after four years the age of the father will be three times that of the son. Their ages respectively are:
A. 12 years, 44 years B. 16 years, 42 years C. 16 years, 48 years D. 18 years, 36 years

27. Ayesha's father was 38 years of age when she was born while her mother was 36 years old when her brother four years younger to her was born. What is the difference between the ages of her parents. a. 2 b. 4 c. 6 d. 8 years

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Sec E
Roll No: 18

1. Last day of the century cannot be
   a. Monday b. Wednesday c. Tuesday d. Friday
2. The present age of Satya is three times the age of his son. Six years hence, the ratio of their ages will be 5:2. Present age of Satya
   a. 48 b. 50 c. 54 d. 60
3. What is the angle between hands of a clock, when it shows 4 : 20 pm.
   a. 0^0 b. 10^0 c. 20^0 d. 30^0
4. A garrison of 500 men had provisions for 27 days. After 3 days a reinforcement of 300 men arrived. For how many more days will the remaining food last now. a. 15 b. 16 c. 17.5 d. 18
5. Ratio of ages of Tina and Rakesh is 9:10 respectively. Ten years ago,the ratio of their ages was 4:5 respectively. Present age of Rakesh.
   a. 18 b. 20 c. 24 d. 28
6. What will be the day of the week on 15th August 2010
   a.Sunday b. Monday c. Tuesday d. Friday
7. Ten years ago, a man was seven times as old as his son. Two years hence, twice his age will be equal to five times the age of his son. Present age of the son a. 12 b. 13 c. 14 d. 15
8. How many days are there in x weeks x days
   a. $7x^2$ b. 8x c. 14x d. 7
9. 21 binders can bind 1400 books in 15 days. How many binders will be required to bind 800 books in 20 days. a.7 b. 9 c. 12 d. 14
10. At what time between 7 and 8' o clock will the hands of a clock be in same straight line but not together.
    a. 5 mins past 7 b. 5(2/11) mins past 7
    c. 5(5/11) mins past 7 d. 5(3/11) mins past 7
11. If 5 spiders can catch five flies in five minutes, how many flies can hundred spiders catch in 100 minutes. a.100 b. 500 c. 1000 d. 2000
12. 5 men or 7 women can earn Rs 5250 per day,how much would 7 men and 13 women earn per day. a.11600 b. 11700 c. 16100 d. 17100
13. Which of these is not a leap year?
    a.2020 b.2096 c.2100 d. 2104
14. If on 29th February of a leap year falls a monday, then what would be the day on 31st December of the same year?
    a. Monday b. Saturday c.Thursday d.Sunday
15. What is John's present age, if 10 years later his age will be 5 times his age 6 years ago? a.12 years b.7 years c.8 years d.10 years
16. One year ago, the ratio of Parul and Atima's age was 5:6 respectively, after 4 years, the ratio becomes 6:7. Find the present age of Atima.
    a.25 years b.26 years c.31 years d.35 years
17. What is the angle covered by the minute hand in 22 minutes.
    a.66 degrees b.110 degrees c.132 degrees d.220 degrees

18. A clock is set right at 5am. Clock loses 16 mins in 24 hours. What will be the true time when clock shows 10 pm on 4th day.
a. 10 pm b. 9 pm c. 11pm d. 10:30pm

19. Calendar for the year 2007 will be same for the year
a. 2014 b. 2016 c. 2017 d. 2018

20. A contractor employed 30 men to do a piece of work in 38 days. After 25 days, he employed 5 men more and the work was finished one day earlier. How many days he would have been behind, if he had not employed additional men. a. 1 b. 5/4 c. 7/4 d. 2

21. 15 men take 21 days of 8 hours each to do a piece of work. How many days of 6 hours each would 21 women take, if 3 women do as much work as 2 men. a. 18 b. 20 c, 25 d. 30

22. A's age after 15 years would be equal to 5 times his age 5 years ago. Find his age 3 years hence. a. 10 b. 13 c. 14 d. 15

23. .The day on 2nd April 1901 was :
a. Monday b.Tuesday c.Thursday d. Friday

24. .Today it is Sunday, day after 55 days will be what?
a. Monday b. Saturday c. Thursday d. Sunday

25. Watch which gains uniformly is 2 mins slow at noon on Monday and is 4 mins 48 secs fast at 2 pm on following Monday. When was it correct?
a. Wednesday 2 PM b.Wednesday 3 PM
c. Wednesday 2:30 PM d.Wednesday 1:40 PM

26. 7th March of a leap year falls on Sunday (2024), what would be the day on 28th March of the next year?
a. Friday b.Saturday c. Monday d. Sunday

27. . Shivani is 60 years old and Ritu is 80 years old. How many years ago their age ratio was 4:6?
a. 10 years b. 15 years c. 20 years d.25 years

28. The present age of Aradhana and Aadrika is in the ratio 3:4. 5 years back, the ratio of their ages was 2:3. What is the present age of Aradhana? a.12 years b. 22 c. 15 years d.20 years

29. At what time between 6 and 7 are the hands of a clock 8 minutes apart?
a. 24 min past 6 b. B. 21 min past 6 c.18min past 6 .d. 20 min past 6

30. A clock is started at 2pm. By 20 minutes past 5, the hour hand has turned through a. 155 b. 110 c. 100 d. 90

31. On what dates of July. 2004 did Monday fall?
a. 6th, 10th, 21th, 30th b.. 12th, 7th, 19th, 28th
c. 5th, 10th, 24th, 17th d.. 5th, 12th, 19th, 26th

32. 10. The ratio of Sara's age 4 years ago and Vaishali's age after 4 years is 1: 1. Presently, the ratio of their ages is 5: 3. Find the ratio between Sara's age 4 years hence and Vaishali's age 4 years ago.
a. 1 : 3 b. 3 : 1 c. 4 : 3 d. 3 : 4

Average

Average = $\frac{\text{sum of observations}}{\text{number of observations}}$

① Average of first 40 natural numbers (20.5)

② Average of four consecutive even numbers is 27. Largest of these numbers (30)

③ Of the three numbers, second is twice the first and is also thrice the third. If average of three numbers is 44. Largest number (72)

④ Average of 11 results is 60. If average of first six results is 58 and that of last six is 63. Sixth result (66)

⑤ A batsman makes a score of 87 runs in the 17th inning and thus increases his average by 3. Average after 17th innings (39)

⑥ Average age of height of 25 boys is 1.4. When 5 boys leave the group, average height increases by 0.15 m. Average height of 5 boys who leave (0.8)

⑦ A bus travels 240 km at a speed of 80 km/hr. It covers next 360 km at a speed of 90 km/hr. What is its average speed (85.71 km/hr)

⑧ Average weight of 10 persons in a boat is increased by 4.8 kg when one of the crew who weighs 53 kg is replaced by new man. Weight of new man (71)

⑨ Mean of 50 observations was 36. It was found later that an observation 48 was wrongly taken as 23. Corrected new mean is (36.5)

(A) Average of first nine prime numbers is
(a) 9 (b) 11 (c) $11\frac{1}{9}$ (d) $11\frac{2}{9}$

(B) Average of 2, 7, 6 and x is 5 and the average of 18, 1, 6, x and y is 10. Value of y (a) 5 (b) 10 (c) 20 (d) 30

(C) Library has an average of 510 visitors on Sunday & 240 on other days. Average number of visitors per day in a month of 30 days beginning with a Sunday is (a) 250 (b) 276 (c) 280 (d) 285

(D) Average score of a cricketer for ten matches is 38.9 runs. If the average for first six matches is 42, average for last four matches (a) 33.25 (b) 33.5 (c) 34.25 (d) 35

(E) Average weight of 16 boys in a class is 50.25 kg and that of remaining 8 boys is 45.15 kg. Average weight of all the boys in class (a) 47.55 (b) 48 (c) 48.55 (d) 49

(F) Average of 11 numbers is 10.9. If average of first six numbers is 10.5 and that of last six numbers is 11.4, middle number (a) 11 (b) 11.3 (c) 11.4 (d) 11.5

(G) Average age of 36 students in a group is 14 years. When teacher's age is included to it, average increases by one. Teacher's age in years (a) 31 (b) 36 (c) 51 (d) 50

(H) Of the four numbers whose average is 60, first is one fourth of the sum of last three. First number is
(a) 15 (b) 45 (c) 48 (d) 60.25

(I) Average of runs of a cricket player 10 innings was 32. How many runs must he make in his next innings so as to increase his average of runs by 4 (a) 2 (b) 4 (c) 70 (d) 76

(J) Average of 7 consecutive numbers is 20. Largest of these numbers is (a) 20 (b) 22 (c) 23 (d) 24

(K) A motorist travels to a place 150 km away at an average speed of 50 km/hr and returns at 30 km/hr. His average speed for the whole journey is (a) 35 (b) 37 (c) 37.5 (d) 40