

TOP 66 Aptitude Questions For TCS-NQT

1) If $\log 0.317=0.3332$ and $\log 0.318=0.3364$ then find $\log 0.319$?

Sol) $\log 0.317=0.3332$ and $\log 0.318=0.3364$, then

$$\log 0.319 = \log 0.318 + (\log 0.318 - \log 0.317) = 0.3396$$

2) A box of 150 packets consists of 1kg packets and 2kg packets. Total weight of box is 264kg. How many 2kg packets are there ?

Sol) $x = 2$ kg Packs

$y = 1$ kg packs

$$x + y = 150 \quad \text{..... Eqn 1}$$

$$2x + y = 264 \quad \text{..... Eqn 2}$$

Solve the Simultaneous equation; $x = 114$

so, $y = 36$

ANS : Number of 2 kg Packs = 114.

3) My flight takes off at 2am from a place at 18N 10E and landed 10 Hrs later at a place with coordinates 36N70W. What is the local time when my plane landed?

6:00 am b) 6:40am c) 7:40 d) 7:00 e) 8:00

Sol) The destination place is 80 degree west to the starting place. Hence the time difference between these two places is 5 hour 20 min. ($= 24\text{hr} \times 80/360$).

When the flight landed, the time at the starting place is 12 noon (2 AM + 10 hours).

Hence, the time at the destination place is 12 noon - 5:20 hours = 6: 40 AM

4) A plane moves from 9°N40°E to 9°N40°W. If the plane starts at 10 am and takes 8 hours to reach the destination, find the local arrival time ?

Sol) Since it is moving from east to west longitude we need to add both

ie, $40+40=80$

multiply the ans by 4

$$\Rightarrow 80 \times 4 = 320\text{min}$$

convert this min to hours ie, 5hrs 33min

It takes 8hrs totally . So $8-5\text{hr } 30\text{ min} = 2\text{hr } 30\text{min}$

So the ans is 10am+2hr 30 min

\Rightarrow ans is 12:30 it will reach

5) The size of the bucket is N kb. The bucket fills at the rate of 0.1 kb per millisecond. A programmer sends a program to receiver. There it waits for 10 milliseconds. And response will be back to programmer in 20 milliseconds. How much time the program takes to get a response back to the programmer, after it is sent? Please tell me the answer with explanation. Very urgent.

Sol) see it doesn't matter that wat the time is being taken to fill the bucket. after reaching program it waits there for 10ms and back to the programmer in 20 ms. then total time to get the response is $20\text{ms} + 10\text{ms} = 30\text{ms}$... it's so simple....

6) A file is transferred from one location to another in '\buckets\'. The size of the bucket is 10 kilobytes. Each bucket gets filled at the rate of 0.0001 kilobytes per millisecond. The transmission time from sender to receiver is 10 milliseconds per bucket. After the receipt of the bucket the receiver sends an acknowledgement that reaches sender in 100 milliseconds. Assuming no error during transmission, write a formula to calculate the time taken in seconds to successfully complete the transfer of a file of size N kilobytes.

$(n/1000) * (n/10) * 10 + (n/100)$ as i hv calculated... ~!not 100% sure

7) A fisherman's day is rated as good if he catches 9 fishes, fair if 7 fishes and bad if 5 fishes. He catches 53 fishes in a week n had all good, fair n bad days in the week. So how many good, fair n bad days did the fisherman had in the week

Ans: 4 good, 1 fair n 2 bad days.

Sol) Go to river catch fish

$$4 * 9 = 36$$

$$7 * 1 = 7$$

$$2 * 5 = 10$$

$$36 + 7 + 10 = 53...$$

take what is given 53

good days means --- 9 fishes so $53/9 = 4$ (remainder=17) if u assume 5 then there is no chance for bad days.

fair days means ----- 7 fishes so remaining 17 --- $17/7 = 1$ (remainder=10) if u assume 2 then there is no chance for bad days.

bad days means ----- 5 fishes so remaining 10 --- $10/5 = 2$ days.

Ans: 4 good, 1 fair, 2 bad. ==== total 7 days.

$$x + y + z = 7 \text{ ----- eq1}$$

$$9 * x + 7 * y + 5 * z = 53 \text{ ----- eq2}$$

multiply eq 1 by 9,

$$9x + 9y + 9z = 35 \text{ -----eq3}$$

from eq2 and eq3

$$2y + 4z = 10 \text{ -----eq4}$$

since all x,y and z are integer i sud put a integer value of y such that z sud be integer in eq 4
.....and ther will be two value y=1 or 3 then z = 2 or 1 from eq 4

for first y=1,z=2 then from eq1 x= 4

so $9 \cdot 4 + 1 \cdot 7 + 2 \cdot 5 = 53$ satisfied

now for second y=3 z=1 then from eq1 x=3

so $9 \cdot 3 + 3 \cdot 7 + 1 \cdot 5 = 53$ satisfied

so finally there are two solution of this question

(x,y,z)=(4,1,2) and (3,3,1)...

8) Y catches 5 times more fishes than X. If total number of fishes caught by X and Y is 42, then number of fishes caught by X?

Sol) Let no. of fish x catches=p

no. caught by y =r

$$r = 5p.$$

$$r + p = 42$$

$$\text{then } p = 7, r = 35$$

9) Three companies are working independently and receiving the savings 20%, 30%, 40%. If the companies work combinely, what will be their net savings?

suppose total income is 100

so amount x is getting is 80

y is 70

z =60

total=210

but total money is 300

$$300 - 210 = 90$$

so they are getting 90 rs less

90 is 30% of 300 so they r getting 30% discount

10) The ratio of incomes of C and D is 3:4. the ratio of their expenditures is 4:5. Find the ratio of their savings if the savings of C is one fourth of his income?

Sol) incomes:3:4

expenditures:4:5

$$3x-4y=1/4(3x)$$

$$12x-16y=3x$$

$$9x=16y$$

$$y=9x/16$$

$$(3x-4(9x/16))/((4x-5(9x/16)))$$

ans:12/19

11) If $G(0) = -1$, $G(1) = 1$ and $G(N) = G(N-1) - G(N-2)$ then what is the value of $G(6)$?

ans: -1

$$\text{bcoz } g(2) = g(1) - g(0) = 1 + 1 = 2$$

$$g(3) = 1$$

$$g(4) = -1$$

$$g(5) = -2$$

$$g(6) = -1$$

12) If A can copy 50 pages in 10 hours and A and B together can copy 70 pages in 10 hours, how much time does B take to copy 26 pages?

Sol) A can copy 50 pages in 10 hrs.

A can copy 5 pages in 1 hr. (50/10)

now A & B can copy 70 pages in 10 hrs.

thus, B can copy 90 pages in 10 hrs. [eqn. is $(50+x)/2=70$, where $x \rightarrow$ no. of pages B can copy in 10 hrs.]

so, B can copy 9 pages in 1 hr.

therefore, to copy 26 pages B will need almost 3 hrs.

since in 3 hrs B can copy 27 pages.

13) what's the answer for that :

A, B and C are 8 bit no's. They are as follows:

A \rightarrow 1 1 0 0 0 1 0 1

B \rightarrow 0 0 1 1 0 0 1 1

C \rightarrow 0 0 1 1 1 0 1 0 (- =minus, u=union)

Find $((A - C) \cup B) = ?$

To find A-C, We will find 2's complement of C and then add it with A,
That will give us (A-C)

2's complement of C = 1's complement of C + 1

= 11000101 + 1 = 11000110

A-C = 11000101 + 11000110

= 10001001

Now (A-C) U B is .OR. logic operation on (A-C) and B

10001001 .OR. 00110011

The answer is = 10111011,

Whose decimal equivalent is 187.

14) One circular array is given (means memory allocation takes place in circular fashion)
dimension (9x7) and starting add. is 3000, What is the address of (2,3).....

Sol) it's a 9x7 int array so it requires 126 bytes for storing. b'c' integer value needs 2 bytes of
memory allocation. and starting add is 3000

so starting add of 2x3 will be 3012.

15) In a two-dimensional array, X (9, 7), with each element occupying 4 bytes of memory, with
the address of the first element X (1, 1) is 3000, find the address of X (8, 5).

Sol) initial x (1,1) = 3000 u have to find from x(8,1) so u have x(1,1), x(1,2) ... x(7,7) = so u have
totally 7 * 7 = 49 elements u need to find for x(8,5) ? here we have 5 elements each element
have 4 bytes : (49 + 5 - 1) * 4 = 212 ----- (-1 is to deduct the 1 element) 3000 + 212 = 3212

16) Which of the following is power of 3

a) 2345 b) 9875 c) 6504 d) 9833

We can verify this by dividing the numbers by 3 repeatedly to see if we get a power of 3.

17) The size of a program is N. And the memory occupied by the program is given by M = square
root of 100N. If the size of the program is increased by 1% then how much memory now
occupied ?

Sol) $M = \sqrt{100N}$

N is increased by 1%

therefore new value of $N = N + (N/100)$

= $101N/100$

$M = \sqrt{100 * (101N/100)}$

Hence, we get $M = \sqrt{101 * N}$

18)

1)SCOOTER ----- AUTOMOBILE--- A. PART OF

2.OXYGEN----- WATER ----- B. A Type of

3.SHOP STAFF----- FITTERS----- C. NOT A TYPE OF

4. BUG -----REPTILE----- D. A SUPERSET OF

1)B 2)A 3)D 4)C

19) A bus started from bustand at 8.00a m and after 30 min staying at destination, it returned back to the bustand. the destination is 27 miles from the bustand. the speed of the bus 50 percent fast speed. at what time it returns to the bustand

this is the step by step solution:

a bus cover 27 mile with 18 mph in $=27/18= 1$ hour 30 min. and it wait at stand $=30$ min.

after this speed of return increase by 50% so 50%of 18 mph=9mph

Total speed of returnig= $18+9=27$

Then in return it take $27/27=1$ hour

then total time in joureny= $1+1:30+00:30 =3$ hour

so it will come at $8+3$ hour= 11 a.m.

So Ans== 11 a.m

20) In two dimensional array $X(7,9)$ each element occupies 2 bytes of memory.If the address of first element $X(1,1)$ is 1258 then what will be the address of the element $X(5,8)$?

Sol) Here, the address of first element $x[1][1]$ is 1258 and also 2 byte of memory is given. now, we have to solve the address of element $x[5][8]$, therefore, $1258+ 5*8*2 = 1258+80 = 1338$ so the answer is 1338.

21) The temperature at Mumbai is given by the function: $-t^2/6+4t+12$ where t is the elapsed time since midnight. What is the percentage rise (or fall) in temperature between 5.00PM and 8.00PM?

Sol) **Step 1: Calculate Temperature at 5:00 PM**

At 5:00 PM, $t=17$ $t = 17$ $t=17$ (since 5 PM is 17 hours after midnight):

$$T(17)=-\frac{(17)^2}{6}+4(17)+12 \quad T(17) = -\frac{(17)^2}{6} + 4(17) + 12 \quad T(17)=-6(17)^2+4(17)+12$$

Step 2: Calculate Temperature at 8:00 PM

At 8:00 PM, $t=20$ $t = 20$ $t=20$:

$$T(20)=-\frac{(20)^2}{6}+4(20)+12 \quad T(20) = -\frac{(20)^2}{6} + 4(20) + 12 \quad T(20)=-6(20)^2+4(20)+12$$

Step 3: Find Percentage Change

Percentage change is given by:

$$\frac{T(20)-T(17)}{T(17)} \times 100 = \frac{T(20) - T(17)}{T(17)} \times 100$$

Let me compute this.

- Temperature at **5:00 PM (t = 17) = 31.83°C**
- Temperature at **8:00 PM (t = 20) = 25.33°C**
- Percentage change = **-20.42%**

Since the percentage change is negative, the temperature **falls by 20.42%** between 5:00 PM and 8:00

22) Low temperature at the night in a city is $\frac{1}{3}$ more than $\frac{1}{2}$ high as higher temperature in a day. Sum of the low temperature and highest temp. is 100 degrees. Then what is the low temp?

Sol) Let highest temp be x

so low temp = $\frac{1}{3}$ of x of $\frac{1}{2}$ of x plus $\frac{x}{2}$ i.e. $\frac{x}{6} + \frac{x}{2}$

total temp = $x + \frac{x}{6} + \frac{x}{2} = 100$

therefore, $x = 60$

Lowest temp is 40

23) In Madras, temperature at noon varies according to $-t^2/2 + 8t + 3$, where t is elapsed time. Find how much temperature more or less in 4pm to 9pm. Ans. At 9pm 7.5 more

Sol) In equation first put $t=9$,

we will get 34.5.....(1)

now put $t=4$,

we will get 27.....(2)

so ans = $34.5 - 27$

= 7.5

24) A person had to multiply two numbers. Instead of multiplying by 35, he multiplied by 53 and the product went up by 540. What was the raised product?

a) 780 b) 1040 c) 1590 d) 1720

Sol) $x * 53 - x * 35 = 540 \Rightarrow x = 30$ therefore, $53 * 30 = 1590$ Ans

Sol) There is a simple way to answer this kind of Q's given $2x + 3y = 100$, take l.c.m of 'x' coeff and 'y' coeff i.e. l.c.m of 2,3 = 6 then divide 100 with 6, which turns out 16 hence answer is 16
short cut formula --- constant / (l.c.m of x coeff and y coeff)

26) The total expense of a boarding house are partly fixed and partly variable with the number of boarders. The charge is Rs.70 per head when there are 25 boarders and Rs.60 when there are 50 boarders. Find the charge per head when there are 100 boarders.

a) 65 b) 55 c) 50 d) 45

Sol)

Let a = fixed cost and k = variable cost and n = number of boarders

total cost when 25 boarders $c = 25 \times 70 = 1750$ i.e. $1750 = a + 25k$

total cost when 50 boarders $c = 50 \times 60 = 3000$ i.e. $3000 = a + 50k$

solving above 2 eqns, $3000 - 1750 = 25k$ i.e. $1250 = 25k$ i.e. $k = 50$

therefore, substituting this value of k in either of above 2 eqns we get

$a = 500$ ($a = 3000 - 50 \times 50 = 500$ or $a = 1750 - 25 \times 50 = 500$)

so total cost when 100 boarders $= c = a + 100k = 500 + 100 \times 50 = 5500$

so cost per head $= 5500/100 = 55$

27) Amal bought 5 pens, 7 pencils and 4 erasers. Rajan bought 6 pens, 8 erasers and 14 pencils for an amount which was half more than what Amal had paid. What % of the total amount paid by Amal was paid for pens?

a) 37.5% b) 62.5% c) 50% d) None of these

Sol)

Let, 5 pens + 7 pencils + 4 erasers = x rupees

so 10 pens + 14 pencils + 8 erasers = 2*x rupees

also mentioned, 6 pens + 14 pencils + 8 erasers = 1.5*x rupees

so $(10-6) = 4$ pens = $(2-1.5)x$ rupees

so 4 pens = 0.5x rupees \Rightarrow 8 pens = x rupees

so 5 pens = $5x/8$ rupees = $5/8$ of total (note x rupees is total amt paid byamal)

i.e $5/8 = 500/8\% = 62.5\%$ is the answer

28) I lost Rs.68 in two races. My second race loss is Rs.6 more than the first race. My friend lost Rs.4 more than me in the second race. What is the amount lost by my friend in the second race?

Sol)

$x + x+6 = \text{rs } 68$

$2x + 6 = 68$

$2x = 68-6$

$2x = 62$

$x=31$

x is the amt lost in I race

$x+ 6 = 31+6=37$ is lost in second race

then my friend lost $37 + 4 = 41$ Rs

29) Ten boxes are there. Each ball weighs 100 gms. One ball is weighing 90 gms. i) If there are 3 balls ($n=3$) in each box, how many times will it take to find 90 gms ball? ii) Same question with $n=10$ iii) Same question with $n=9$ to me the chances are

when $n=3$

(i) $nC1 = 3C1 = 3$ for 10 boxes .. $10*3=30$

(ii) $10C1=10$ for 10 boxes $10*10=100$

(iii) $9C1=9$ for 10 boxes $10*9=90$

30) $(1-1/6) (1-1/7).... (1- (1/ (n+4))) (1-(1/ (n+5))) = ?$

leaving the first numerator and last denominator, all the numerator and denominator will cancelled out one another. Ans. $5/(n+5)$

31) A face of the clock is divided into three parts. First part hours total is equal to the sum of the second and third part. What is the total of hours in the bigger part?

Sol) the clock normally has 12 hr

three parts x,y,z

$$x+y+z=12$$

$$x=y+z$$

$$2x=12$$

$$x=6$$

so the largest part is 6 hrs

32) With $4/5$ full tank vehicle travels 12 miles, with $1/3$ full tank how much distance travels

Sol) $4/5$ full tank= 12 mile

$$1 \text{ full tank} = 12 / (4/5)$$

$$1/3 \text{ full tank} = 12 / (4/5) * (1/3) = 5 \text{ miles}$$

33) wind blows 160 miles in 330min.for 80 miles how much time required

Sol) 160 miles= 330 min

$$1 \text{ mile} = 330/160$$

$$80 \text{ miles} = (330*80)/160 = 165 \text{ min.}$$

34) A person was fined for exceeding the speed limit by 10mph.another person was also fined for exceeding the same speed limit by twice the same if the second person was travelling at a speed of 35 mph. find the speed limit

Sol)

$$(x+10)=(x+35)/2$$

solving the eqn we get $x=15$

35) A sales person multiplied a number and get the answer is 3 instead of that number divided by 3. what is the answer he actually has to get.

Sol) Assume 1

$$1 * 3 = 3$$

$$1 * 1/3 = 1/3$$

so he has to got $1/3$

this is the exact answer

36) A person who decided to go weekend trip should not exceed 8 hours driving in a day average speed of forward journey is 40 mph due to traffic in Sundays the return journey average speed is 30 mph. How far he can select a picnic spot.

Sol) Let the distance to the picnic spot be d miles.

The total driving time should not exceed **8 hours**.

Step 1: Time Calculation

- **Forward Journey (Speed = 40 mph)**

Time taken to reach the spot:

$$\text{Time} = \frac{d}{40} \quad \text{Time} = \frac{d}{40}$$

- **Return Journey (Speed = 30 mph)**

Time taken to return:

$$\text{Time} = \frac{d}{30} \quad \text{Time} = \frac{d}{30}$$

Step 2: Total Time Constraint

$$\frac{d}{40} + \frac{d}{30} \leq 8 \quad d + \frac{4}{3}d \leq 320 \quad \frac{7}{3}d \leq 320$$

Find d . Let me calculate this.

Solving the equation gives:

$$d = \frac{960}{7} \approx 137.14 \text{ miles} \quad d \approx 137.14 \text{ miles}$$

So, the person can select a picnic spot **up to 137 miles away** to ensure the total driving time does not exceed 8 hours.

37) Low temperature at the night in a city is $\frac{1}{3}$ more than $\frac{1}{2}$ hinge as higher temperature in a day. Sum of the low temp and high temp is 100 c. then what is the low temp.
ans is 40 c.

Sol) let x be the highest temp. then,

$$x + \frac{x}{2} + \frac{x}{6} = 100.$$

therefore, $x=60$ which is the highest temp

and $100-x=40$ which is the lowest temp.

38) car is filled with four and half gallons of oil for full round trip. Fuel is taken $\frac{1}{4}$ gallons more in going than coming. What is the fuel consumed in coming up.

Sol) let feul consumed in coming up is x. thus equation is: $x+1.25x=4.5$ ans:2gallons

39) A work is done by the people in 24 min. One of them can do this work alone in 40 min. How much time required to do the same work for the second person?

Sol) Two people work together in 24 mins.

So, their one day work is

$$\left(\frac{1}{A}\right) + \left(\frac{1}{B}\right) = \left(\frac{1}{24}\right)$$

One man can complete the work in 40mins

$$\text{one man's one day work } \left(\frac{1}{B}\right) = \left(\frac{1}{40}\right)$$

Now,

$$\left(\frac{1}{A}\right) = \left(\frac{1}{24}\right) - \left(\frac{1}{40}\right)$$

$$\left(\frac{1}{A}\right) = \left(\frac{1}{60}\right)$$

So, A can complete the work in 60 mins.

40) In a company 30% are supervisors and 40% employees are male if 60% of supervisors are male. What is the probability? That a randomly chosen employee is a male or female?

Sol) 40% employees are male if 60% of supervisors are male so for 100% is 26.4%so the probability is 0.264

41) In 80 coins one coin is counterfeit what is minimum number of weighing to find out counterfeit coin

Sol) the minimum number of wieghtings needed is just 5.as shown below

(1) 80->30-30

(2) 15-15

(3) 7-7

(4) 3-3

(5) 1-1

42) 2 oranges, 3 bananas and 4 apples cost Rs.15. 3 oranges, 2 bananas, and 1 apple costs Rs 10.
What is the cost of 3 oranges, 3 bananas and 3 apples?

Sol)

$$2x+3y+4z=15$$

$$3x+2y+z=10 \text{ adding}$$

$$5x+5y+5z=25$$

$x+y+z=5$ that is for 1 orange, 1 banana and 1 apple requires 5Rs.

so for 3 orange, 3 banana and 3 apple requires 15Rs.

$$\text{i.e. } 3x+3y+3z=15$$

43) In 8*8 chess board what is the total number of squares refers

Sol) I discovered that there are 204 squares on the board We found that you would add the different squares - $1 + 4 + 9 + 16 + 25 + 36 + 49 + 64$.

Also in 3*3 tic tac toe board what is the total no of squares

Ans 14 ie $9+4$ (bigger ones)+1 (biggest one)

If you get 100*100 board just use the formula

the formula for the sum of the first n perfect squares is

$$n \times (n + 1) \times (2n + 1)$$

6

if in this formula if you put $n=8$ you get your answer 204

44) One fast typist type some matter in 2hr and another slow typist type the same matter in 3hr.
If both do combinely in how much time they will finish.

Sol) Faster one can do $\frac{1}{2}$ of work in one hour slower one can do $\frac{1}{3}$ of work in one hour both they do $(\frac{1}{2}+\frac{1}{3}=\frac{5}{6})$ th work in one hour.so work will b finished in $\frac{6}{5}=1.2$ hour i e 1 hour 12 min.

45) If Rs20/- is available to pay for typing a research report & typist A produces 42 pages and typist B produces 28 pages. How much should typist A receive?

Sol) Here is the answer Find of 42 % of 20 rs with respect to 70 (i.e $28 + 42$) $\Rightarrow (42 * 20)/70$
 $\Rightarrow 12$ Rs

46) An officer kept files on his table at various times in the order 1,2,3,4,5,6. Typist can take file from top whenever she has time and type it.What order she cannt type.?

Sol) The files are stacked on the officer's table in the order:

1, 2, 3, 4, 5, 6 (with **6** on top and **1** at the bottom).

The typist follows a **LIFO (Last In, First Out)** approach, meaning she can only take the top file at any time.

Possible Orders:

The typist can type the files in any order that follows **LIFO**.

For example, she can type in the following sequences:

- $6 \rightarrow 5 \rightarrow 4 \rightarrow 3 \rightarrow 2 \rightarrow 1$
- $6 \rightarrow 5 \rightarrow 3 \rightarrow 4 \rightarrow 2 \rightarrow 1$
- $6 \rightarrow 4 \rightarrow 5 \rightarrow 3 \rightarrow 2 \rightarrow 1$

Orders that are Not Possible:

She **cannot** type in an order that violates the **stack rule** (removing a file from the middle before removing the top ones).

For example, **1, 2, 3, 4, 5, 6 (FIFO - First In, First Out)** is **not possible** because the typist cannot access file **1** until all the top files (6, 5, 4, 3, and 2) are removed.

Thus, **FIFO order (1 → 2 → 3 → 4 → 5 → 6) is not possible.**

47) In some game 139 members have participated every time one fellow will get bye what is the number of matches to choose the champion to be held?

the answer is 138 matches

Sol) since one player gets a bye in each round, he will reach the finals of the tournament without playing a match.

therefore 137 matches should be played to determine the second finalist from the remaining 138 players (excluding the 1st player)

therefore to determine the winner 138 matches should be played.

48) One rectangular plate with length 8 inches, breadth 11 inches and 2 inches thickness is there. What is the length of the circular rod with diameter 8 inches and equal to volume of rectangular plate?

Sol) Vol. of rect. plate = $8 \times 11 \times 2 = 176$

area of rod = $(\frac{22}{7}) \times (\frac{8}{2}) \times (\frac{8}{2}) = (\frac{352}{7})$

vol. of rod = area * length = vol. of plate

so length of rod = vol of plate / area = $176 / (\frac{352}{7}) = 3.5$

49) One tank will fill in 6 minutes at the rate of 3cu ft /min, length of tank is 4 ft and the width is 1/2 of length, what is the depth of the tank?

Sol). Given Data:

- The tank fills in **6 minutes** at a rate of **3 cubic feet per minute**.
- The **length** of the tank = **4 feet**.
- The **width** is **half of the length**, so: $\text{Width} = \frac{4}{2} = 2 \text{ feet}$

Step 1: Calculate Total Volume of the Tank

Since the tank fills at a rate of **3 cubic feet per minute**, the total volume is:

$\text{Total Volume} = \text{Filling rate} \times \text{Time}$
 $\text{Total Volume} = 3 \times 6 = 18 \text{ cubic feet}$

Step 2: Find Depth of the Tank

The volume of a rectangular tank is given by:

$\text{Volume} = \text{Length} \times \text{Width} \times \text{Depth}$
 $18 = 4 \times 2 \times \text{Depth}$
 $18 = 8 \times \text{Depth}$
 $\text{Depth} = \frac{18}{8} = 2.25 \text{ feet}$

Final Answer:

The **depth of the tank** is **2.25 feet**.

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50) A man has to get air-mail. He starts to go to airport on his motorbike. Plane comes early and the mail is sent by a horse-cart. The man meets the cart in the middle after half an hour. He takes the mail and returns back, by doing so, he saves twenty minutes. How early did the plane arrive?

Sol) ans:10min:::assume he started at 1:00,so at 1:30 he met cart. He returned home at 2:00.so it took him 1 hour for the total journey.by doing this he saved 20 min.so the actual time if the

plane is not late is 1 hour and 20 min.so the actual time of plane is at 1:40.The cart travelled a time of 10 min before it met him.so the plane is 10 min early.

51) Ram singh goes to his office in the city every day from his suburban house. His driver Mangaram drops him at the railway station in the morning and picks him up in the evening. Every evening Ram singh reaches the station at 5 o'clock. Mangaram also reaches at the same time. One day Ram singh started early from his office and came to the station at 4 o'clock. Not wanting to wait for the car he starts walking home. Mangaram starts at normal time, picks him up on the way and takes him back house, half an hour early. How much time did Ram singh walked?

Sol). Let's analyze the given scenario:

- Ram Singh normally reaches the station at **5:00 PM**, and his driver Mangaram also reaches the station at the same time.
- One day, Ram Singh reaches the station **at 4:00 PM** and starts walking home.
- Mangaram starts at his usual time, **reaches the station at 5:00 PM**, but finds Ram Singh walking and picks him up **earlier than usual**.
- Due to this, they reach home **30 minutes earlier** than usual.

Step 1: Define Variables

- Let **T** be the total time Mangaram takes to drive from home to the station.
- Since they reach home **30 minutes early**, it means **Mangaram saved 30 minutes in total travel time (to and from the station)**.
- This means that **Mangaram picked up Ram Singh 15 minutes earlier than usual** (since the return trip is also affected equally).

Step 2: Time Ram Singh Walked

- Mangaram normally reaches the station at **5:00 PM** but now picks up Ram Singh **at 4:45 PM**.
- Since Ram Singh started walking at **4:00 PM**, he **walked for 45 minutes** before being picked up.

Final Answer:

Ram Singh walked for 45 minutes.

40

52) 2 trees are there. One grows at $\frac{3}{5}$ of the other. In 4 years total growth of the trees is 8 ft. what growth will smaller tree have in 2 years.

Sol) THE BIG TREE GROWS 8FT IN 4 YEARS=>THE BIG TREE GROWS 4FT IN 2 YEARS.WHEN WE DIVIDE $4\text{FT}/5=.8*3=>2.4$

ans: 1.5 mt $4(x+(\frac{3}{5})x)=8$
 $8x/5=2x=5/4$ after 2 years $x=(\frac{3}{5})*(\frac{5}{4})*2=1.5$

53) There is a six digit code. Its first two digits, multiplied by 3 gives all ones. And the next two digits multiplied by 6 give all twos. Remaining two digits multiplied by 9 gives all threes. Then what is the code?

sol) Assume the digit xx xx xx (six digits)

First Two digit $xx * 3=111$

$$xx=111/3=37$$

(first two digits of 1 is not divisible by 3 so we can use 111)

Second Two digit $xx*6=222$

$$xx=222/6=37$$

(first two digits of 2 is not divisible by 6 so we can use 222)

Thrid Two digit $xx*9=333$

$$xx=333/9=37$$

(first two digits of 3 is not divisible by 9 so we can use 333)

54) There are 4 balls and 4 boxes of colours yellow, pink, red and green. Red ball is in a box whose colour is same as that of the ball in a yellow box. Red box has green ball. In which box you find the yellow ball?

ans is green...

Sol) Yellow box can have either of pink/yellow balls.

if we put a yellow ball in "yellow" box then it wud imply that "yellow" is also the colour of the box which has the red ball(becoz acordin 2 d question,d box of the red ball n the ball in the yellow box have same colour)

thus this possibility is ruled out...

therefore the ball in yellow box must be pink,hence the colour of box containin red ball is also pink....

=>the box colour left out is "green" ,,,which is allotted to the only box left,,,the one which has yellow ball..

55) A bag contains 20 yellow balls, 10 green balls, 5 white balls, 8 black balls, and 1 red ball. How many minimum balls one should pick out so that to make sure the he gets at least 2 balls of same color.

Ans:he should pick 6 ball totally.

Sol) Suppose he picks 5 balls of all different colours then when he picks up the sixth one, it must match any on of the previously drawn ball colour.

thus he must pick 6 balls

56) What is the number of zeros at the end of the product of the numbers from 1 to 100

Sol) For every 5 in unit palce one zero is added

so between 1 to 100 there are 10 nos like 5,15,25,...,95 which has 5 in unit place.

Similarly for every no divisible by 10 one zero is added in the answer so between 1 to 100 11 zeros are added

for 25,50,75 3 extra zeros are added

so total no of zeros are $10+11+3=24$

57) 10 Digit number has its first digit equals to the numbers of 1\'s, second digit equals to the numbers of 2\'s, 3rd digit equals to the numbers of 3\'s .4th equals number of 4\'s..till 9th digit equals to the numbers of 9\'s and 10th digit equals to the number of 0\'s. what is the number?.(6marks)

ans:2100010006

2---shows that two 1\'s in the ans

1---shows that one 2 in ans

0---shows no 3 in the ans

0---shows no 4 in the ans

0---shows no 5 in the ans

1---shows one 6 in the ans

0---shows no 7 in the ans

0---shows no 8 in the ans

0---shows no 9 in the ans

6---shows six 0\'s in the ans

58) There are two numbers in the ratio 8:9. if the smaller of the two numbers is increased by 12 and the larger number is reduced by 19 the ratio of the two numbers is 5:9. Find the larger number?

sol) $8x:9x$ initially

$$8x + 12 : 9x - 19 = 5x : 9x$$

$$8x + 12 = 5x$$

$$\rightarrow x = 4$$

$$9x = 36 \text{ not sure about the answer ..}$$

59) There are three different boxes A, B and C. Difference between weights of A and B is 3 kgs. And between B and C is 5 kgs. Then what is the maximum sum of the differences of all possible combinations when two boxes are taken each time

$$A - B = 3$$

$$B - C = 5$$

$$A - C = 8$$

$$\text{so sum of diff} = 8 + 3 + 5 = 16 \text{ kgs}$$

60) A and B are shooters and having their exam. A and B fall short of 10 and 2 shots respectively to the qualifying mark. If each of them fired atleast one shot and even by adding their total score together, they fall short of the qualifying mark, what is the qualifying mark?

ans is 11

coz each had atleast 1 shot done so $10 + 1 = 11$

$$n 9 + 2 = 11$$

so d ans is 11

61) A, B, C, and D tells the following times by looking at their watches. A tells it is 3 to 12. B tells it is 3 past 12. C tells it is 12:2. D tells it is half a dozen too soon to 12. No two watches show the same time. The difference between the watches is 2,3,4,5 respectively. Whose watch shows maximum time?

sol) A shows 11:57, B shows 12:03, C shows 12:02, and D shows 11:06 therefore, max time is for B

62) Falling height is proportional to square of the time. One object falls 64cm in 2sec than in 6sec from how much height the object will fall.

Sol) The falling height is proportional to the square of the time.

Now, the falling height is 64cm at 2sec

so, the proportional constant is $= 64 / (2^2) = 16$;

so, at 6sec the object fall maximum $(16 * 6^2) \text{cm} = 576 \text{cm}$;

Now, the object may be situated at any where.

if it is > 576 only that time the object falling 576cm within 6sec .Otherwise if it is situated < 576 then it fall only that height at 6sec.

63) Gavaskar average in first 50 innings was 50. After the 51st innings his average was 51 how many runs he made in the 51st innings

Ans) first 50 ings.- run= $50 \times 50 = 2500$

51st ings.- avg 51. so total run = $51 \times 51 = 2601$.

so run scored in that ings= $2601 - 2500 = 101$ runs.

64) Anand finishes a work in 7 days, Bittu finishes the same job in 8 days and Chandu in 6 days. They take turns to finish the work. Anand on the first day, Bittu on the second and Chandu on the third day and then Anand again and so on. On which day will the work get over?

a) 3rd b) 6th c) 9th d) 7th

Ans is d) 7th day

Sol) In d 1st day Anand does $\frac{1}{7}$ th of total work

similarly,

Bithu does $\frac{1}{8}$ th work in d 2nd day

hence at d end of 3 days, work done = $\frac{1}{7} + \frac{1}{8} + \frac{1}{6} = \frac{73}{168}$

remaining work = $(\frac{168-73}{168}) = \frac{95}{168}$

again after 6 days of work, remaining work is = $(\frac{95-73}{168}) = \frac{22}{168}$

and hence Anand completes the work on 7th day.(hope u understood.)

65) A man, a women and a child can do a piece of work in 6 days,man can do it in 14 days, women can do it 16 days, and in how many days child can do the same work?

Given:

- (Man + Woman + Child) complete the work in 6 days \rightarrow Work rate = $\frac{1}{6}$ per day
- Man alone takes 14 days \rightarrow Work rate of Man = $\frac{1}{14}$ per day
- Woman alone takes 16 days \rightarrow Work rate of Woman = $\frac{1}{16}$ per day

Let Child's work rate be $\frac{1}{C}$, where C is the number of days the child alone takes.

Step 1: Form the Equation

$$\frac{1}{14} + \frac{1}{16} + \frac{1}{C} = \frac{1}{6}$$

Step 2: Solve for C

Let me calculate this.

Solving the equation, we get:

$$C \approx 30.55 \text{ days} \quad C \approx 30.55 \text{ days}$$

So, the **child alone would take approximately 30.55 days (or 30 days and 13 hours) to complete the work.**

66)

A: 1 1 0 1 1 0 1 1

B: 0 1 1 1 1 0 1 0

C: 0 1 1 0 1 1 0 1

Find $((A-B) \cup C) == ?$

Hint : 109

A-B is $\{A\} - \{A \cap B\}$

A: 1 1 0 1 1 0 1 1

B: 0 1 1 1 1 0 1 0

by binary sub. $a-b = 01100001$ (1-0=1, 1-1=0, 0-0=0, n for the 1st 3 digits 110-011=011)

now $(a-b) \cup c = 01100001$

or 01101101

gives 1101101... convert to decimal equals 109