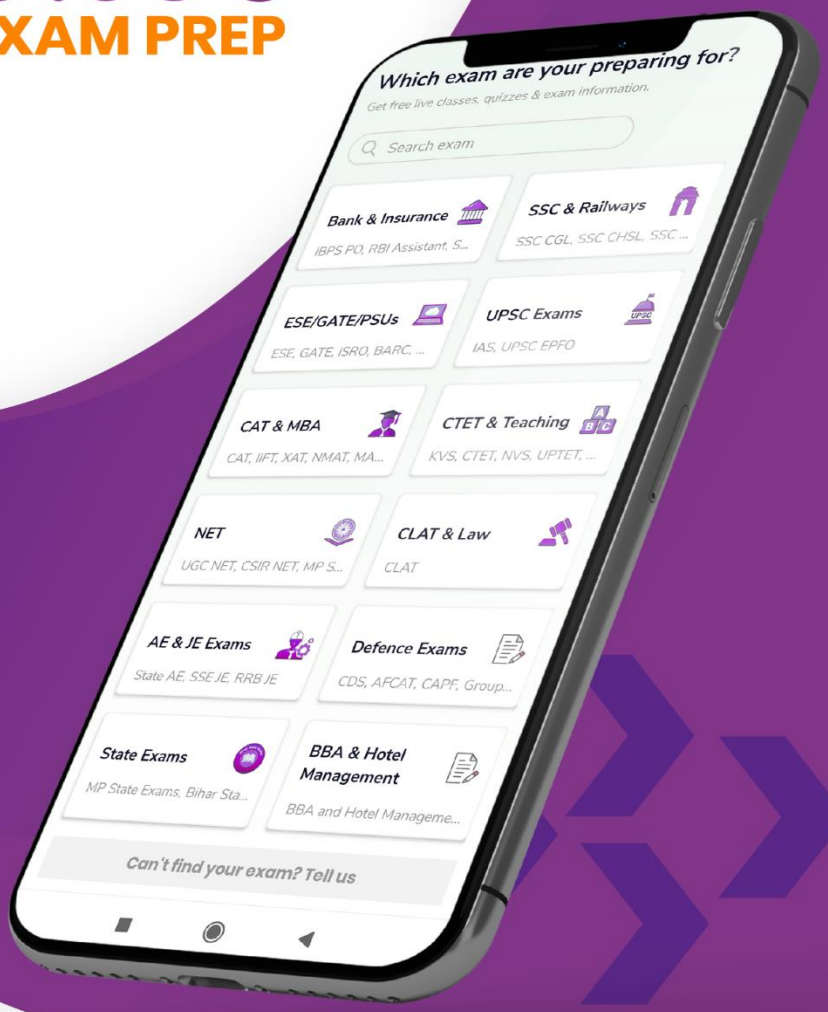
BYJU'S EXAM PREP



IBPS RRB 2022 Imp.
Arithmetic Questions

1. In a business, A invested 1200 rs. more than B. B invested his amount for 15 months while A invested for 4 months more than that of B. If total profit was 1240 rs. in which the profit of B is 280 Rs. less than that if A. then what was the invested amount of A?
A. 6000
B. 7000
C. 5000
D. 8000
E. 6500

2. Soumya can complete $\frac{1}{5}$th of the work in 7 days, Rupam can complete $\frac{1}{7}$th of the work in 4 days and Avik can complete 60% of the work in 15 days. Who will complete the work first and in how many days Soumya and Avik together can complete the work?
A. Soumya, $4\frac{5}{12}$
B. Avik, $14\frac{7}{12}$
C. Avik, $8\frac{7}{12}$
D. Soumya, $12\frac{3}{10}$
E. Soumya, $8\frac{3}{10}$

3. The difference between Simple Interest and Compound Interest at the rate of 12% on the same amount for 3 years is Rs. 112.32. What is the principal amount if interest is compounded annually?
A. Rs. 25000
B. Rs. 2500
C. Rs. 50000
D. Rs. 5000
E. Rs. 2000

4. There were 14 students in a class. When the ages of a teacher and a new boy are added, the average age of the class increases by 10 percent while it remains the same when only the age of a boy is added. If the teacher's age is eight more than the twice the age of new boy, then find the initial average age of the class.
A. 5.53
B. 13.33
C. 12.53
D. 14.33
E. 15.43

5. A car travelling at 80kmph uses 60% more petrol to travel a certain distance than it does when it travels at the speed of 60kmph. If the Car has a mileage 32km/liters of petrol at 60kmph. What distance can car travel on 20 liters of petrol at a speed of 80kmph?
A. 800 KM
B. 400 KM
C. 300 KM
D. 600 KM
E. 420 KM

6. When 6 litres of petrol is filled in the petrol tank of a scooter, the petrol indicator needle moved from 1/4 to 5/8. Find the capacity of the tank in litres.
A. 24
B. 28
C. 16
D. 12
E. 20

7. The average age of Ramesh, Sushant, Vijay, Neel, Amit and Rodney is 58 years. Amit and Vijay's total age is 124 years. Sushant is thrice Neel's age. The average age of Ramesh and Rodney is 52 years. Vijay is four years younger than Sushant. The ages of Ramesh and Rodney are in the ratio 29:23.
What is the ratio of the ages of Amit and Neel?
A. 29:21
B. 13:11
C. 17:18
D. 19:15
E. 7: 15

8. Three machines M, N and O are employed to do a work. Machines M and N together can do the work in 15 Days while machines N and O together can do the work in 7.5 days. If machine N is performing the role of destroyer and can

destroy the whole work in 7.5 days, then what is the total time taken by all the three machines together to do the work?
A. 7.5 days
B. 5 days
C. 3 days
D. 4.5 days
E. None of these

9. If x is the average of m and 9, y is the average of 2m and 15, and z is the average of 3m and 18, what is the average of x, y, and z in terms of m?
A. m+6
B. m+7
C. 2m+14
D. 3m+21
E. None of these

10. A retailer bought some shirts at wholesale and marked them up 80% to reach their initial retail price of Rs 450/- each. By how muchmore rupees does he need to increase the price of each shirt to achieve a 100% markup?
A. 10
B. 20
C. 30
D. 40
E. 50

11. Two pipes P and Q can fill a tank in 20 hours and 30 hours respectively. Both the pipes were opened to fill the empty tank and just when the tank should have been full, it was noticed that there was a leakage in the bottom all this while. The leak was then closed immediately and it took 6 more hours to fill the tank. How long would the leak take to empty the full tank?
A. 6
B. 12
C. 18
D. 24
E. 30

12. A and B working alone can complete a work in 24 and 48 days respectively. If 50% of the work is completed by C in 3x days and the remaining work is completed by A and B working together in 'x' days, then find the time taken by B and C together to complete the work.
A. 16 days
B. 24 days
C. 20 days
D. 18 days
E. None of these

13. A Car run with an average speed of 80 km/hr. A Bus takes 12 hours to cover thrice the distance covered by Car in 6 hours. How much distance will the Bus cover in one hours?
A. 120 km
B. 125 km
C. 110 km
D. 130 km
E. None of these

14. Rs. 782 is divided into 3 parts in the ratio (1/2) : (2/3) : (3/4) and the first part is further divided into 2 parts in the ratio of 1 : 2. Then find the difference of sum between the 2 parts, which are obtained when the first part is sub-divided.
A. Rs. 68
B. Rs. 34
C. Rs. 56
D. Rs. 48
E. None of these

15. Rohit can row a boat 65 km upstream and 130 km downstream in 46 hours, whereas he can row the same boat 45 km upstream and 104 km downstream in 34 hours. Find the difference in the speed of the boat in still water and the speed of the stream.
A. 4.5 km/hr
B. 3.5 km/hr
C. 2.5 km/hr
D. 6.5 km/hr
E. Can't be determined

###ANSWERS###

1. Ans. A.
Let B's investment = x rs.
∴ A's investment =(x + 1200) rs.
Ratio of the profits of A and B = (x+1200)*(15+4):x*15
= {19(x+1200)}:15x
Now,let the total profit of A =y
∴ total profit of B = (y-280)
But total profit = 1240
⇒y+(y-280)=1240
⇒2y=1520
⇒y= 760
∴profit of A = 760rs.
Profit of B = 760-280=480 rs.
Ratio of profits= 760:480 = 19:12
According to the question,

$$\frac{19(x+1200)}{15x} = \frac{19}{12}$$

$$\Rightarrow 12x+14400=15x$$

⇒3x = 14400
⇒x = 4800 rs.
⇒investment of A = 4800+1200
= 6000 rs.
2. Ans. B.
Given,
Soumya can complete $\frac{1}{5}$th of the work in 7 days, Rupam can complete $\frac{1}{7}$th of the work in 4 days and Avik can complete 60% of the work in 15 days.
Soumya's 1 day's work = $\frac{1}{5\times7} = \frac{1}{35}$
So, Soumya will complete the work in 35 days.
Rupam's 1 day's work = $\frac{1}{7\times4} = \frac{1}{28}$
So, Rupam will complete the work in 28 days.
Avik's 1 day's work = $\frac{60}{100\times15} = \frac{1}{25}$
So, Avik will complete the work in 25 days.
Hence, Avik will complete the work first.
(Soumya + Avik)'s 1 day's work = $\frac{1}{35} + \frac{1}{25} = \frac{12}{175}$
Then, the time required to complete the work by Soumya and Avik together = $\frac{175}{12} = 14\frac{7}{12}$ days.
3. Ans. B.
Let the principal amount be Rs. x
Calculating SI:
SI for 1 year at 12% rate is Rs (12/100)*x. For 3 years it will be Rs (36/100)*x ------ (1)
Calculating CI:
For 1st year, Interest = (12/100)*x
For 2nd year, interest = (12/100)*x + (12/100)*x + (144/10000)*x
For 3rd year, interest = (12/100)*x + (12/100)*x + (12/100)*x + (144/10000)*x + (144/10000)*x + (1728/1000000)*x. ------ (2)
Subtracting equation 2 and 1 and solving further,
312*144*x/1000000 = 112.32
X = Rs 2500.
Alternative way: Using formula for Difference between CI and SI for 3 years

$$\frac{PR^2}{100^2}\left(3+\frac{R}{100}\right)$$

we can also use the above formula to find the value of P.
4. Ans. B.
Let the average of age of students be A and the age of new student be X.
Age of teacher = 2X+8
Now, as per question, (14*A + X)/15 = A, i.e. A = X
Also, (2A+8 + A + 14A)/16 = A + 10% of A = 1.1A
On solving, A = 40/3 = 13.33
5. Ans. B.
mileage 32km/liters when travelling at 60kmph
effective mileage at 80kmph = 32*100/160 = 20 km/liters
hence in 20 liters, the car travel = 20*20 = 400 km
6. Ans. C.
Initial reading before the petrol is filled = 1/4
Final reading after the petrol is filled= 5/8
The part up to which petrol is filled = 5/8 – 1/4 = 3/8

3/8 of the petrol tank = 6 litres
Capacity of the petrol tank = (6*8)/3 = 16 litres
7. Ans. D.
(Ramesh + Rodney)+ (Sushant + Neel) + (Amit+ Vijay) = 58*6=348
52*2 + (Sushant + Neel) + 124= 348
Sushant + Neel= 348-104-124
Sushant+ Neel= 120
Let the age of Neel be x and Sushant be 3x
So,
x + 3x= 120
x = 30
Sushant's age= 3*30= 90 years
Neel's age= 30 years
Total ages of Ramesh and Rodney= 52*2= 104
Rodney's age= 23/52*104= 46years
Ramesh=29/52*104= 58 years
Vijay= 86 years
Amit= 38 years [Total ages of Vijay and Amit given]
Ratio of ages of Amit and Neel= 38:30= 19:15
8. Ans. C.
Let the time taken by machines M and O to do the work alone is 'M' and 'O' respectively
According to the question,
Time taken by M and N together to do the work is 15 days

$$\frac{1}{M}-\frac{1}{7.5}=\frac{1}{15}$$

$$\frac{1}{M}=\frac{1}{15}+\frac{1}{7.5}$$

M = 5 days

$$\frac{1}{O}-\frac{1}{7.5}=\frac{1}{7.5}$$

$$\frac{1}{O}=\frac{1}{7.5}+\frac{1}{7.5}$$

O = 3.75 days

$$=\frac{1}{\left[\frac{1}{5}-\frac{1}{7.5}+\frac{1}{3.75}\right]}=\frac{1}{\left[\frac{3-2+4}{15}\right]}=3\ days$$

So option (c) is the correct answer.
9. Ans. B.
ATQ,

x= $\frac{m+9}{2}$, y= $\frac{2m+15}{2}$, z= $\frac{3m+18}{2}$.

The average of x, y, and z = $\frac{x+y+z}{3}$. Substituting the expressions in m for each variable (x, y, z). We get,

$$\Rightarrow \frac{x+y+z}{3}=\frac{[(m+9)/2+(2m+15)/2+(3m+18)/2]}{3}=$$

m+7.
10. Ans. E.
Let the wholesale price of the shirt be Rs. '***x***'. The retailer marked up the wholesale price by 80%.
So, ATQ
$x + 0.80x = 450$
$\Rightarrow 1.8x = 450$
$\Rightarrow$ x= 250
Now, the wholesale price is Rs 250, the price for a 100% markup is Rs 500. Therefore the retailer needs to increase the Rs450 initial retail price by Rs50 to achieve a 100% markup.
11. Ans. D.
The two pipes can fill the tank in $\frac{30\times20}{(30+20)}$ = 12 hours
but they actually take = (12 + 6) = 18 hours due to leakage and
In 18 hours, the two pipes will fill = $\frac{18}{12}=1\frac{1}{2}$ tank
∴ The leakage empties the ½ tank in 12 hours
So, it will empty the full tank in 2 × 12 = 24 hours.

12. Ans. B.
Time taken by A and B to complete the work while working together = $\frac{24\times48}{24+48}=16\ days$
So, x = $\frac{16}{2}=8$ (since 50% of the work is done by A and B together)
As, time taken by C to complete 50% of the work = 8 x 3 = 24 days
So, time taken by C to complete the entire work = 24 x 2 = 48 days
Therefore, time taken by B and C to complete the work while working together = $\frac{48\times48}{48+48}=24$ days
So option (b) is the correct answer.
13. Ans. A.

Distance covered by Car in 6 hours = 6*80 = 480
Distance covered by Bus in 12 hours = (480*3) = 1440
Distance covered by Bus one hour = 1440/12 = 120 km
14. Ans. A.
$\frac{1}{2} : \frac{2}{3} : \frac{3}{4}$ multiply by LCM of denominators 2, 3, 4
6 : 8 : 9 = First part : Second part : Third part,
First part (6) further sub-divided in ratio 1: 2 that is= 2 : 4
So the difference between these 2 parts ratio-wise= 4-2= 2
Now value of ratio 2 is = $\frac{782}{6+8+9} \times 2$ = 68 Rs.
15. Ans. C.
Let the upstream speed be U and the downstream speed be D, then
U = Speed of boat – speed of stream
D = Speed of boat + speed of stream
So, $\frac{65}{U} + \frac{130}{D} = 46$
& $\frac{45}{U} + \frac{104}{D} = 34$
On solving, we get D = 6.5 km/hr and U = 2.5 km/hr