**PROBLEMS**

**1. A number is tripled and 7 is added. If the resultant is doubled, it becomes 50.what is**

**That number?**

**(a)5 (b)6 (c)8 (d)none of these**

**Ans:(b)**

**Soln: let the**  **number be x. Then**

**2(3x+7)=50**

**6x+14=50**

**6x=36**

**x=6**

**2. The product of two natural numbers is 13. Then, the sum of the reciprocals of their squares is:**

**(a)169 (b)1/169 (c)170/169 (d)169/170**

**Ans: (c)**

**Soln: let the number be a and b. Then ab=13 => a=1 and b=13**

**So,1/(a\*a) + 1/(b\*b) = (a\*a)+(b\*b)/((a\*a)(b\*b))**

**= (1\*1)+(13\*13)/((1\*13)(1\*13))=170/169**

**3. If 7 ½ is added to a number and sum multiplied by 2 ½ and 5 is added to the product and then**

**Dividing the sum by 2 1/5 ,the quotient becomes 30. What is the number?**

**(a)(11\*11)/10 (b)(12\*12)/10 (c)(13\*13)/10 (d)(15\*15)/10**

**Ans:(c)**

**Soln: let the number be x. Then,**

**(2 1/2 (x+7 ½)+5)/(2 1/5) = 30**

**(5/2(x+(15/2))+5)/(11/5) = 30**

**(5/2)x + (75/4) = 61**

**(5/2)x = 169/4**

**x = 169/10 = (13\*13)/10**

**4. The difference of 2 numbers is 10 and one-fourth of their sum is also 10. Find the numbers?**

**(a)20 and 10 (b)35 and 25 (c)25 and 15 (d)15 and 5**

**Ans: (c)**

**Soln: let the numbers be x and y. Then x-y = 10 🡪(i)**

**And ¼(x+y)=10 = x+y = 40🡪(ii)**

**Adding (i) and (ii),we get**

**2x=50 , x=25**

**y=15**

**Hence, the numbers are 25 and 15**

**5. A number is as much greater than 50 as is less than 64. Find the number?**

**(a)37 (b)47 (c)57 (d)59**

**Ans: (c)**

**Soln: let the number be x, then**

**x-50 = 64-x**

**2x=114**

**x=57**

**Hence, the required number is 57**

**6. The sum of a rational number and its reciprocal is 13/6. Find the number?**

**(a)5/3 or 3/5 (b)2/5 or 5/2 (c)2/3 or 3/2 (d)none of these**

**Ans: (c)**

**Soln: let the number be x. Then,**

**x+1/x = 13/6**

**6(x\*x)-13x+6=0**

**6(x\*x)-9x-4x+6=0**

**(3x-2)(2x-3)=0**

**x=2/3 or x=3/2**

**Hence, the required number is 2/3 or 3/2**

**7. A number whose sixth part increased by 5 is equal to its second part diminished by 5,is:**

**(a)17 (b)25 (c)30 (d)34**

**Ans: (c)**

**Soln: let the number be x. Then,**

**((1/6)x+5) = ((1/2)x-5)**

**(x+30)/6 = (x-10)/2**

**X+30 = 3x-30**

**2x=60 => x=30**

**8. The sum of 2 numbers is 35 and their difference is 15. The ratio of the numbers is:**

**(a)5/2 (b)7/3 (c)2/5 (d)5/3**

**Ans: (a)**

**Soln: let the numbers be x and y. Then,**

**(X+y)/(x-y) = 35/15 = 7/3**

**3(x+y) = 7(x-y)**

**3x+3y = 7x-7y**

**4x = 10y**

**x/y = 5/2**

**9. The sum of the numerator and denominator of a fraction is 13. If 1 is added to numerator and**

**2 is subtracted from denominator it becomes 2. The fraction is:**

**(a)8/5 (b)5/8 (c)7/6 (d)6/7**

**Ans: (c)**

**Soln: let the fraction be x/y, then**

**x+y=13🡪(i)**

**(x+1)/(y-2) = 2**

**x+1 = 2y-4**

**x-2y = -5🡪(ii)**

**solving (i) and (ii), we get x=7 and y=6, so fraction is 7/6**

**10. 729 has been divided into 3 parts such that the half of the first part, one-third of the second**

**Part and one-fourth of the third part are equal. The largest part is:**

**(a)343 (b)243 (c)234 (d)324**

**Ans: (d)**

**Soln: let the three parts be A,B and C.**

**Let A/2 = B/3 = C/4 = x. Then,**

**A=2x, B =3x, C=4x. so,**

**A:B:C = 2:3:4**

**Largest part = (729\*(4/9)) = 324**

**11. The sum of 2 numbers is 30 and their product is 225. What will be the sum of their**

**Reciprocals?**

**(a)1/30 (b)2/15 (c)15/4 (d)15/7**

**Ans: (b)**

**Soln: let the numbers be x and y. Then,**

**X+y=30 and x\*y=225**

**(1/x)+(1/y) = (x+y)/(x\*y) = 30/225 = 2/15**

**12. Two different natural numbers are such that their product is less than their sum. One of**

**The numbers must be:**

**(a)1 (b)2 (c)3 (d)None of these**

**Ans: (a)**

**Soln: since 1\*x < 1+x,so one of the numbers is 1.**

**13. A car moves at the speed of 60km/hr. What is the speed of the car in metres per second?**

**(a)50/3 (b)60 (c)50/9 (d)None of these**

**Ans: (a)**

**Soln: Speed=(60\*(5/18))**

**Speed=50/3 m/s**

**14. Yash crosses a 400 m long street in 4 minutes. What is his speed in km per hour?**

**(a)5/3 (b)36 (c)6 (d)6.1**

**Ans: (c)**

**Soln: Speed=400/(4\*60)=5/3**

**=> (5/3)\*(18/5)**

**=> 6 km/hr**

**15. One of the two buses completes a journey of 300kms in 6hrs and the other a journey of**

**600kms in 8hrs. The ratio of their speeds is:**

**(a)3:4 (b)2:3 (c)3:2 (d)2:4**

**Ans: (b)**

**Soln: Ratio = 300/6 : 600/8**

**=> 50:75**

**=> 10:15**

**=> 2:3**

**16. The ratio between the speeds of two trains is 8:9. If the second train runs 500kms in 5hrs,**

**the speed of the first train is**

**(a)88km/hr (b)88.8km/hr (c)85km/hr (d)87.5km/hr**

**Ans: (b)**

**Soln: Let the speeds of two trains be 8x and 9x km/hr**

**Then, 9x=500/5=100**

**=> x=100/9=11.1**

**Therefore, Speed of first train**

**= (8\*11.1)km/hr = 88.8km/hr**

**17. A train travels at an average of 70 miles per hour for 3 ½ hrs and then travels at a speed of**

**90 miles per hour for 2 ½ hrs. How far did the train travel in the entire 6 hrs?**

**(a)470 miles (b)195 miles (c)430 miles (d)370 miles**

**Ans: (a)**

**Soln: Total distance travelled = [70\*3(1/2)]+[90\*2(1/2)]**

**=> 245+225**

**=> 470 miles**

**18. Sound is said to travel in air at about 1500 feet per second. A man hears the axe striking the**

**tree, 12/5 seconds after he sees it strike the tree. How far is the man from the wood**

**chopper?**

**(a)3000ft (b)2300ft (c)3600ft (d)None**

**Ans: (c)**

**Soln: Distance =1500\*(12/5)**

**=300\*12**

**=3600ft**

**19. A motor car starts with the speed of 80km/hr with its speed increasing every two hours by**

**10kmph. In how many hours will it cover 475 kms?**

**(a)1hr 30min (b)1hr 35min (c)1hr 5min (d)None**

**Ans: (b)**

**Soln: Distance covered in first 2 hours = (80\*2)km=160km**

**Distance covered in next 2 hours = (90\*2)km=180km**

**Remaining distance = 475-(160+180)=135km**

**Speed in the fifth hour=100km/hr**

**Time taken to cover 135km=135/100=1.35**

**= 1hr 35 min**

**20. Palak left for city A from city B at 5:30am.She travelled at the speed of 70km/hr for 2hrs**

**30min. After that the speed was reduced to 60km/hr. If the distance between two cities**

**Is 400kms, at what time did Palak reach city A?**

**(a)11:45am (b)11:30am (c)12:00pm (d)None**

**Ans: (a)**

**Soln: Distance covered in 2hrs 30min i.e., 2 ½ hrs = (70\*5/2)=175 hrs**

**Time taken to cover remaining distance = [(400-175)60]hrs**

**= 15/4 hrs**

**=> 3 ¾ hrs = 3hrs 45min**

**Total time taken=(2hrs 30min + 3hrs 45min)=6hrs 15min**

**So, Palak reached city A at 11:45am**

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