

Statement Test 7

1. A card is drawn at random from a well shuffled pack of 52 cards. What is the probability of getting two hearts or two diamonds?

A. $\frac{3}{4}$ B. $\frac{2}{17}$ C. $\frac{1}{26}$ D. $\frac{4}{13}$ E. None of these

2. A sum is invested for 3 years at compound interest at 5%, 10% and 20% respectively. In three years, if the sum amounts to ₹16,632, Find the sum.

A. ₹11,000 B. ₹12,000 C. ₹13,000 D. ₹14,000 E. None of these

3. The sides of a triangle are in the ratio of $\frac{1}{2}:\frac{1}{3}:\frac{1}{4}$. If the perimeter is 52cm, then what is the length of the smallest side?

A. 9cm B. 10cm C. 11cm D. 12cm E. None of these

4. A certain job was assigned to a group of men to do it in 20 days. But 12 men did not turn up for the job and the remaining men did the job in 32 days. What is the original number of men in that group?

A. 32 B. 34 C. 36 D. 40 E. None of these

5. M, N and S each working alone, can finish a work in 84 days, 56 days and 96 days respectively. M worked alone for 23 days and then N took over from M. N worked alone for 24 days and then S took over from N. In how many days will S finish the remaining work?

A. $30\frac{1}{2}$ days B. $29\frac{4}{5}$ days C. $28\frac{4}{7}$ days D. $28\frac{3}{5}$ days E. None of these

6. The cost price of an article is Rs. 240 and it was sold at a discount of 40% such that the seller made a loss of 30%. What was the markup% on that item?

(A) Rs. 50 (B) Rs. 30 (C) Rs. 60 (D) Rs. 40 (E) None of these

7. A bus travels from city A to B at a speed of 60 km/h and return to A from B at a speed of 'S' km/h. If the average speed for both the trips is 48 km/h, then find the value of 'S'.

(A) 50 km/h (B) 20 km/h (C) 40 km/h (D) 30 km/h (E) None of these

8. In a group of 10 persons, 5 persons left the group and 7 new persons joined the group. If the average weight of the group is decreased by 4 kg while the weight of the group remain same, then find the new average weight of the group.

(A) 20 kg (B) 22 kg (C) 24 kg (D) 28 kg (E) None of these

9. A taxi starts with 3 passengers from stand M and travels to stand N. There are 4 stops in between stand M and N. Find the probability that all 3 passengers got of the taxi at different stops before reaching stand N.

(A) $\frac{4}{8}$ (B) $\frac{5}{9}$ (C) $\frac{3}{8}$ (D) $\frac{2}{6}$ (E) None of these

10. Coins of denomination of Rs. 1, 50 paise and Rs. 2 are in the ratio 12 : 10 : 15. If the total value of these coins is Rs. 3290. Find the number of Rs. 2 coins.

(A) 1060 (B) 1010 (C) 1050 (D) 1050 (E) None of these

11. The ratio of income Praveen and Naveen is 7 : 8 and the ratio of expenditure of Praveen and Naveen are 4 : 5. If Praveen's income is $\frac{11}{5}$ th times of Naveen's expenditure, then what is ratio of savings of Praveen and Naveen?

(A) 28 : 64 (B) 39 : 42 (C) 49 : 53 (D) 55 : 11 (E) None of these

12. Prachi, Navya, and Divya took a work for Rs. 4500 and completed a work in 8 days. If Navya's efficiency is 50% more than Divya's efficiency and Prachi and Divya together can complete the same work in 12 days, then what is the share of Navya?

(A) 1100 (B) 1300 (C) 1700 (D) 1500 (E) None of these

13. At present Vishal's age is four times that of Juhi. After eight years Vishal's age will be 2.5 times Juhi's. How many times will Vishal's age be in another eight years as compared to Juhi's age?

A. 2.5 times B. 2 times C. 3 times D. 1.5 times E. 0.5 times

14: Radhika's father was 35 years old when she was born. Her mother was 30

years old when Radhika's younger brother was born. The brother is 3 years younger than Radhika. What is the difference between the ages of her parents (in years)? (A) 6 (B) 8 (C) 9 (D) 10 (E) 7

15: Vessel A contains milk and water in the ratio 5:4, and vessel B contains milk and water in the ratio 8:1. In what ratio should mixtures A and B be mixed to obtain a mixture that is 75% milk? If the required ratio A:B in lowest terms is p:q, find p + q. (A) 11 (B) 13 (C) 14 (D) 12 (E) 10

16. In a mixture of 81 litres, the ratio of milk to water is 5:4, If the ratio of milk to water is to be 1:2 the amount of water that should be added is?

A. 60 litres B. 54 litres C. 27 litres D. 81 litres E. None of these

17. 5% more is gained by selling a bag for ₹2040 than by selling it for ₹1850. Find the cost price of the bag. A. ₹4800 B. ₹2400 C. ₹3680 D. ₹3500 E. ₹3800

18: At a construction site, masons, helpers and trainees are hired in the ratio 5:4:3. Their daily wage per person is in the ratio 6:3:2. If the total daily wage bill is ₹4800, what is the total daily wage paid to the helpers (in ₹)?

(A) 900 (B) 1000 (C) 1100 (D) 1200 (E) 1300

19: One year ago, the ratio of Karan's salary to Nisha's salary was 5:7. The ratio of Karan's salary last year to this year is 4:5, and the ratio of Nisha's salary last year to this year is 3:4. If their present total salary is ₹56100, find Karan's present salary (in ₹). (A) 22500 (B) 21000 (C) 24000 (D) 25500 (E) 27000

20: In a town, 55% of families have a gas connection, 40% have a water purifier, and 25% have both. If there are 200 families in total, how many families have neither a gas connection nor a water purifier? (A) 50 (B) 55 (C) 60 (D) 65 (E) 70

21: Radhika invested an amount. It increased by 10% in the first year and then increased by 25% in the second year. If the amount became ₹27500 after two years, what was the initial investment (in ₹)?

(A) 16000 (B) 18000 (C) 19000 (D) 22000 (E) 20000

22: The marked price of a smartwatch is ₹12500. During a sale, it is sold at a certain discount. Rakesh buys it at the discounted price and later sells it at ₹12500, earning a profit of 25%. What was the discount percentage?

(A) 16 (B) 20 (C) 24 (D) 25 (E) 30

23: Manoj bought 20 cartons of fruit juice at ₹300 per carton. He sold 6 cartons at a profit of 5% and the remaining 14 cartons at a profit of 25%. What is his overall profit percentage? (A) 18 (B) 20 (C) 19 (D) 22 (E) 17

24: In a committee of 6 people, one member left and a new member joined. It was observed that the current average age of the committee is exactly the same as the average age of the committee 3 years ago. Find the difference between the present age of the member who left and the present age of the member who joined (in years). (A) 20 (B) 15 (C) 21 (D) 12 (E) 18

25: Ravi worked on a project alone for 4 days and then left. Mohan completed the remaining work in 6 days. If Ravi had worked alone for 6 days (instead of 4) and then Mohan completed the remaining work in 3 days, in how many days can Mohan alone finish the entire project? (A) 10 (B) 12 (C) 14 (D) 15 (E) 16

26: Train P leaves Station A at 6:00 am and takes 3 hours to reach Station B. Train Q leaves Station B at 7:00 am and takes 5 hours to reach Station A. After how many minutes from 6:00 am will the two trains meet?

(A) 120 (B) 130 (C) 140 (D) 150 (E) 135

27: The ratio of a boat's speed upstream to its speed downstream is 5:9. The boat covers 81 km downstream in 2 hours 15 minutes. What is the speed of the boat in still water (in km/h)? (A) 28 (B) 24 (C) 30 (D) 32 (E) 26

1. B
9. Required probability = $\frac{(78+78) \times 2}{51 \times 52} = \frac{156 \times 2}{51 \times 52} = \frac{2}{17}$ ans.

2. B
10. Required sum = $16632 \times \frac{100}{105} \times \frac{100}{110} \times \frac{100}{120}$
 $16632 \times \frac{20}{21} \times \frac{20}{22} \times \frac{5}{6} = 12,000$ ans.

3. D
11. Ratio of the sides of the triangle = 6:4:3

$13x = 52$

$x=4$

Smallest side = $3 \times 4 = 12\text{cm}$ ans.

4. A
14. Let the total no. of men be x

Then,
 $x \times 20 = (x-12) \times 32$

$32x - 20x = 12 \times 32$

$12x = 12 \times 32$

$x = 32$ men ans.

5. C

6. Ans. (D)
MP% = $(0.7/0.6 - 1) \times 100 = 100/6\%$
Mark up = $240 \times 1/6 = 40$ Rs.

7. Ans. (C)
 $1/S = 2/48 - 1/60$
 $1/S = 1/40$
 $S = 40$ km/h

8. Ans. (A)
Average weight of Group = x
 $10x = (10 - 5 + 7) \times (x - 4)$
 $10x = 12(x - 4)$
 $5x = 6x - 24$
 $x = 24$

New average weight of Group
= $24 - 4 = 20$ kg

9. Ans. (C)
Total possible ways = $43 = 64$
Possible ways of getting of passengers at different stops
= $4 \times 3 \times 2 = 24$
Probability = $24/64 = 3/8$

10. Ans. (C)
 $12x \times 1 + 10x \times 0.5 + 15x \times 2 = 3290$
 $12x + 5x + 30x = 3290$

$47x = 3290$

$x = 70$

Number of 2 Rs. coins
= $15 \times 70 = 1050$

11. Ans. (C)

Income of Praveen = $77x$ Rs.

Income of Naveen = $88x$ Rs.

Expenditure of Naveen

= $77x \times 5/11 = 35x$ Rs.

Expenditure of Praveen

= $35x \times 4/5 = 28x$ Rs.

Saving of Praveen : Saving of Naveen = $(77x - 28x) : (88x - 35x)$
= $49 : 53$

12. Ans. (D)

$P + N + D = 83$

$\} 24 \{$

$P + D = 122$

Efficiency of Navya = $3 - 2 = 1$

Efficiency of Divya = $1/1.5 = 2/3$

Efficiency of Prachi = $2 - 2/3 = 4/3$

Share Ratio, Navya : Divya : Prachi

= $1 : 2/3 : 4/3 = 3 : 2 : 4$

Share of Navya = $4500 \times 3/9$

= 1500 Rs.

13. B

14. B

11. Option B, 8

Brother is 3 years younger than Radhika, so when the brother was born, Radhika was 3 years old. Father was 35 when Radhika was born, so father's age at brother's birth = $35 + 3 = 38$ years. Mother's age at brother's birth is given as 30 years. Difference between parents' ages = $38 - 30 = 8$ years.

15. D

12. Option D, 12

Milk fraction in A = $5/(5+4) = 5/9$. Milk fraction in B = $8/(8+1) = 8/9$. Required milk fraction = $75\% = 3/4$. Using alligation, required A:B = $(8/9 - 3/4) : (3/4 - 5/9)$. Compute: $8/9 - 3/4 = (32-27)/36 = 5/36$ and $3/4 - 5/9 = (27-20)/36 = 7/36$. So A:B = $(5/36):(7/36) = 5:7$, hence $p + q = 5 + 7 = 12$.

16. B

17. E

18. D

1. Option (D) 1200

Let the numbers of masons, helpers, trainees be $5k, 4k, 3k$. Let their per-person daily wages be $6x, 3x, 2x$. Total daily wages = $(5k \times 6x) + (4k \times 3x) + (3k \times 2x) = 30kx + 12kx + 6kx$

= 48kx. Given $48kx = 4800$, so $kx = 100$. Total daily wage paid to helpers = $4kx \times 3x = 12kx = 12 \times 100 = 1200$.

19. A

2. Option (A) 22500

Solution: Let last year's salaries be Karan = $5x$ and Nisha = $7x$. Karan last year : this year = $4:5$, so Karan this year = $5x \times (5/4) = 25x/4$. Nisha last year : this year = $3:4$, so Nisha this year = $7x \times (4/3) = 28x/3$. Present total = $25x/4 + 28x/3 = (75x + 112x)/12 = 187x/12$. Given $187x/12 = 56100 \Rightarrow 187x = 56100 \times 12$. Since $56100 = 187 \times 300$, $x = 3600$. Karan's present salary = $25x/4 = 25 \times 3600/4 = 25 \times 900 = 22500$.

20. C

3. Option (C) 60

Families having at least one of the two = $55\% + 40\% - 25\% = 70\%$ (using inclusion-exclusion). 70% of $200 = 0.70 \times 200 = 140$ families have at least one. Families having neither = total - at least one = $200 - 140 = 60$.

21. E

4. Option (E) 20000

Let the initial amount be P . After 10% increase: amount becomes $1.10P$. After another 25% increase: amount becomes $1.10P \times 1.25 = 1.375P$. Given $1.375P = 27500$. Since $1.375 = 11/8$, we get $P = 27500 \times 8 / 11 = 2500 \times 8 = 20000$.

22. B

5. Option (B) 20

Profit is 25% , so selling price = 125% of cost price. Given selling price = 12500 , cost price = $12500 \times 100 / 125 = 10000$. Marked price = 12500 , so discount amount = $12500 - 10000 = 2500$. Discount % = $(2500/12500) \times 100 = 20\%$.

23. C

6. Option C, 19

Total cost price = $20 \times 300 = 6000$. Profit on 6 cartons at $5\% = 6 \times 300 \times 5/100 = 90$. Profit on 14 cartons at $25\% = 14 \times 300 \times 25/100 = 1050$. Total profit = $90 + 1050 = 1140$, so profit% = $(1140/6000) \times 100 = 19$.

24. E

14. Option E, 18

Let the total age of the 6 members, 3 years ago (including the old member) be T . After 3 years, the remaining 5 old members each become 3 years older, so total increase = $5 \times 3 = 15$ years. Let the old member's age 3 years ago be a ; then his present age would be $a + 3$. Let the new member's present age be b . Current total age = $(T - a) + 15 + b$. Given current average is same as 3 years ago and number of members is still 6, current total age must equal T . So $(T - a) + 15 + b = T \Rightarrow b = a - 15$. Difference between present ages (old leaving member and new joining member) = $(a + 3) - (a - 15) = 18$ years.

25. B

8. Option B, 12

Let Ravi's 1-day work = r and Mohan's 1-day work = m . From case 1: $4r + 6m = 1$. From case 2: $6r + 3m = 1$. Multiply case 2 by 2: $12r + 6m = 2$. Subtract case 1: $(12r + 6m) - (4r + 6m) = 2 - 1 \Rightarrow 8r = 1 \Rightarrow r = 1/8$. Put in $6r + 3m = 1 \Rightarrow 6/8 + 3m = 1 \Rightarrow 3/4 + 3m = 1 \Rightarrow 3m = 1/4 \Rightarrow m = 1/12$, so Mohan alone takes 12 days.

26. E

9. Option E, 135

Let distance A to B be 1 unit. Speed of $P = 1/3$ unit per hour, speed of $Q = 1/5$ unit per hour. If they meet t hours after 6:00 am, then Q has travelled $(t - 1)$ hours (since it starts at 7:00 am). So $t/3 + (t - 1)/5 = 1$. Multiply by 15: $5t + 3(t - 1) = 15 \Rightarrow 5t + 3t - 3 = 15 \Rightarrow 8t = 18 \Rightarrow t = 2.25$ hours = $2.25 \times 60 = 135$ minutes.

27. A

10. Option A, 28

Downstream time = 2 hours 15 minutes = 2.25 hours. Downstream speed = $81 \div 2.25 = 36$ km/h. Given upstream:downstream = $5:9$, upstream speed = $36 \times 5/9 = 20$ km/h. Speed in still water = $(\text{upstream} + \text{downstream}) \div 2 = (20 + 36) \div 2 = 28$ km/h.