**1.** Questions

Study the following information carefully and answer the questions.

The given line graph shows the total number of insurance policies sold in private banks in five different months i.e. January, February, March, April and May in 2023 and also given the difference between the total number of insurance policies sold in private and public banks(Public banks – Private banks) in these five months in 2023.
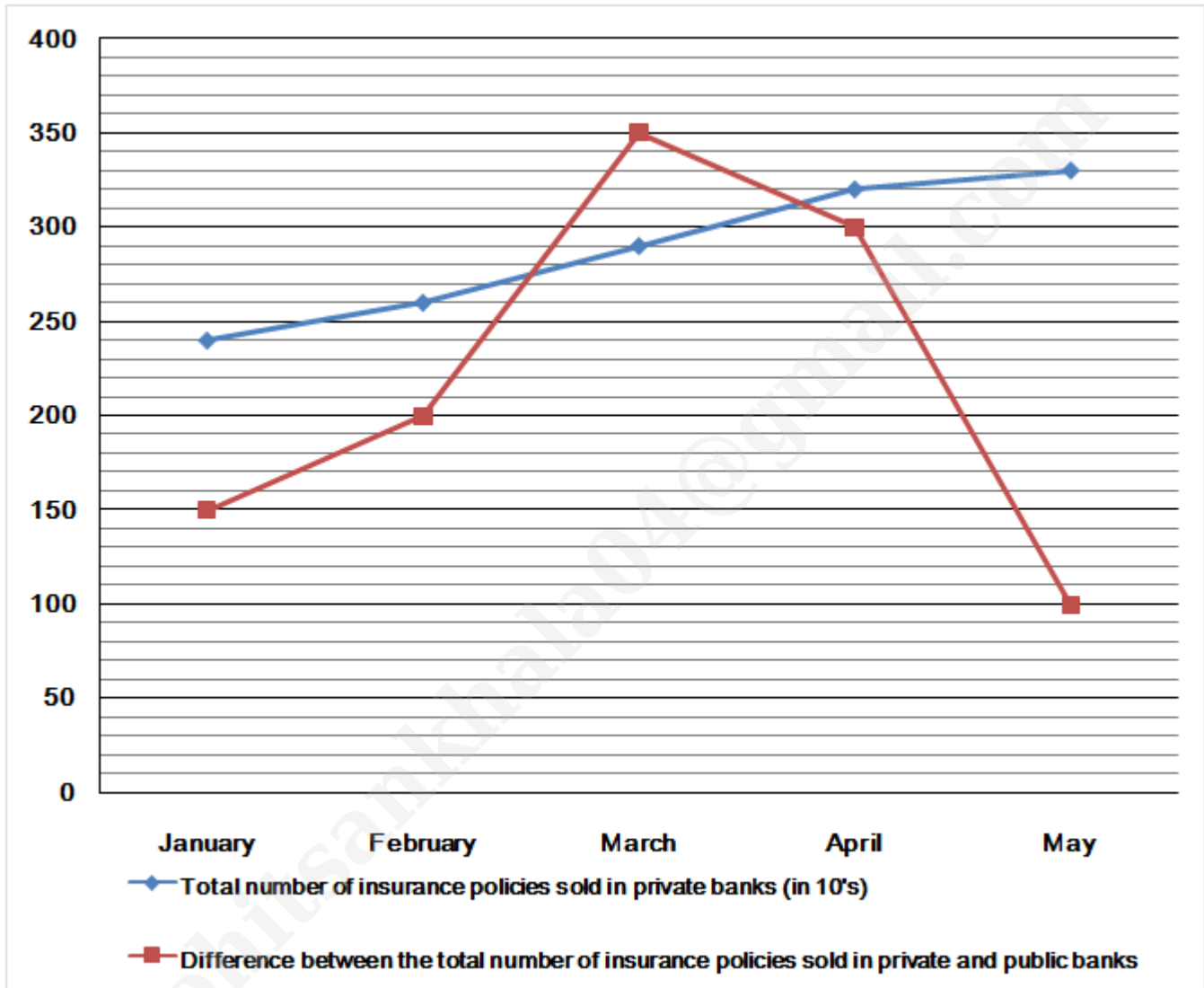
In April, only two types of insurance policies are sold in both banks: Life insurance and Home insurance. The ratio of the number of Life insurance policies sold in private to public banks in April is 7:10 and the number of Home insurance policies sold in private and public banks in April is (P+600) each. Find the value of P.

a. 1300

b. 1500

c. 1900

d. 1100

e. 1000

2. Questions

If the total number of insurance policies soldto males in public banks in March and May together is 4050 and the ratio of the number of insurance policies sold to females in public banks in March to May is 5:8, then the number of insurance policies sold to females in public banks in May is what percentage of the total number of insurance policies sold in private banks in April?

    a. 71%

    b. 50%

    c. 83%

    d. 64%

    e. 38%

3. Questions

Find the ratio of the total number of insurance policies sold in private banks in February to the total number of insurance policies sold in public banks in January and March together.

    a. 41:18

    b. 20:9

    c. 17:10

    d. 13:29

    e. None of these

4. Questions

The total number of insurance policies sold in public banks in June is 2X and the total number of insurance policies sold in private banks in June is 2000 more than that of January. If the total number of insurance policies sold in both banks in June is $19/27^{th}$ times more than that of February, then find the value of $[(X/3)+120]$.

    a. 920

    b. 840

    c. 640

    d. 720

    e. None of these

5. Questions

If the difference between the total number of insurance policies soldin private banks in January and April is (S+600), then find the difference between the total number of insurance policies sold in public banks in January and the total number of insurance policies sold in private banks in May.

a. (S+500)

b. 2.5S

c. (3S + 150)

d. (5S − 410)

e. (S + 800)/2

6. Questions

Study the following information carefully and answer the questions.

The given bar graph shows the number of LED TVs sold on five different days i.e. Monday, Tuesday, Wednesday, Thursday and Friday and also given thepercentage of the number of LCD TVs sold on these five days.

Note: The total number of TVs sold = The number of LED TVs sold + The number of LCD TVs sold
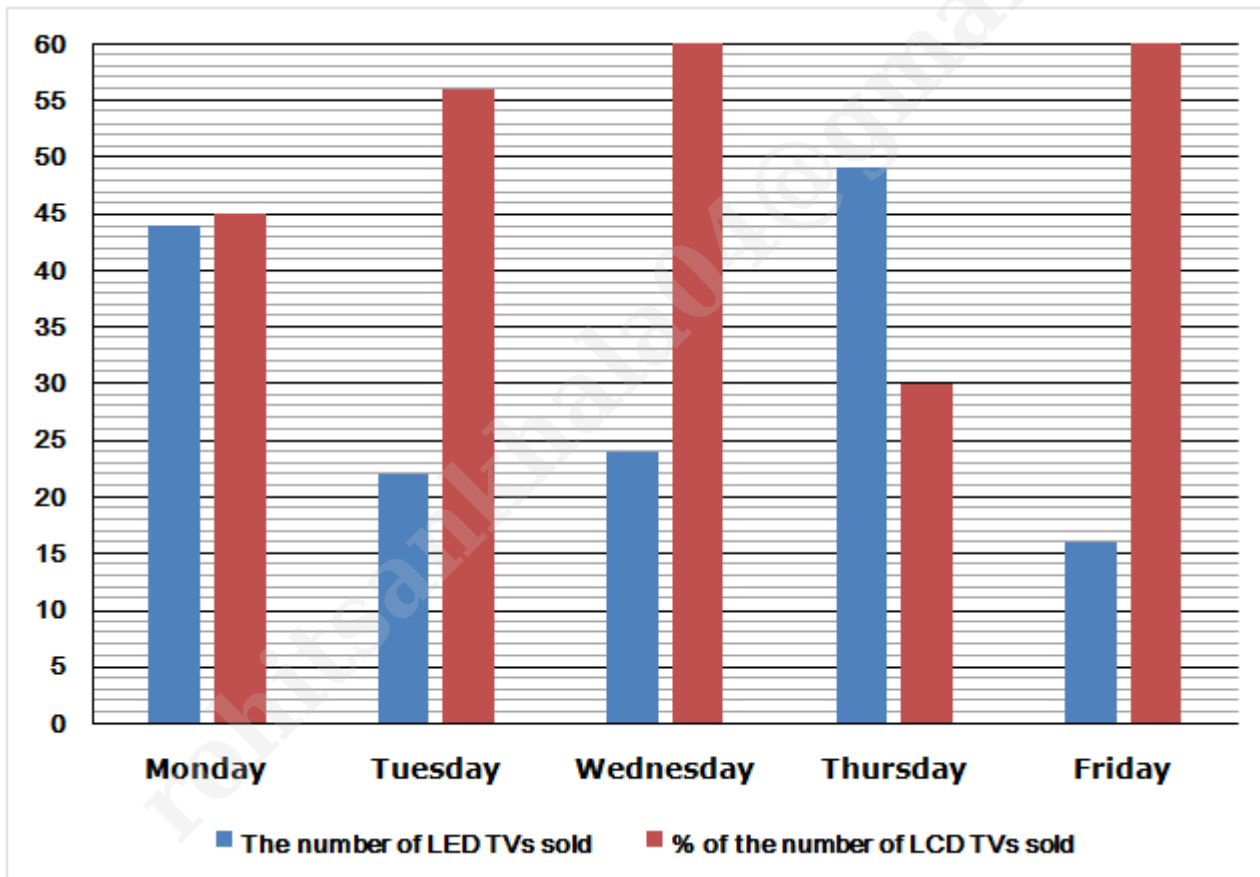
On Tuesday and Friday, two types of LED TVs are sold: 32-inch and 55-inch and the number of

32-inch LED TVs sold on Tuesday is 11/15th of the number of 32-inch LED TVs on Friday and the ratio of the number of 55-inch LED TVs sold on Tuesday to Friday is 11:1. Find the number of 32-inch LED TVs sold on Friday.

a. 90

b. 105

c. 150

d. 120

e. None of these

7. Questions

If the ratio of the number of LCDTVs sold on Wednesday to Saturday is 4:X and the number of LEDTVs sold on Saturday is 1/3 more than the number of LCDTVs sold on Thursday and the ratio of the total number of TVs sold on Saturday to Monday is 11:16, then find the value of $4X^2$.

    a. 16

    b. 64

    c. 36

    d. 100

    e. None of these

8. Questions

Out of the total number of TVs sold on Tuesday, 72% of them are sold to males and the ratio of the number of LED to LCD TVs sold to females on Tuesday is 4:3. If the total number of LCD TVs sold to males on Tuesday and Friday together is 330, then find the number of LCD TVs sold to females on Friday.

    a. 130

    b. 180

    c. 220

    d. 150

    e. 200

9. Questions

If the average number of LED TVs sold on Thursday and Sunday is 410 and the number of LCD TVs sold on Sunday is 1.5 times the number of LCD TVs sold on Friday, then the total number of TVs sold on Sunday is what percentage of the total number of TVs sold on Wednesday?

    a. 145%

    b. 120%

    c. 180%

    d. 115%

    e. None of these

10. Questions

Find the difference between the total number of LCD TVs sold on Monday and Thursday together and the total number of LED TVs sold on Wednesday and Tuesday together.

   a. 130

   b. 150

   c. 170

   d. 110

   e. 100

11. Questions

Read the following information carefully and answer the questions.

There are 1500 students in a school and each of them participated in at least one of these three competitions: dance, singing and cooking. 63% of the students participated in the dance competition, 19% of the students participated only in the dance competition and 40% of the students participated in exactly two competitions. The number of students who participated in both dance and cooking competitions but not in the singing competition is 30 less than the number of students who participated in both dance and singing competitions but not in the cooking competition. The number of students who participated in all three competitions is 330. The number of students who participated in the singing competition but not in the dance competition is $7/25^{th}$ of the total number of students in the school.

Find the difference between the total number of students who participated in the cooking competition and the total number of students who participated in the dance competition but not in the singing competition.

   a. 420

   b. 480

   c. 460

   d. 450

   e. None of these

12. Questions

The number of students who participated in both dance and singing competitions but not in the cooking competition is what percentage of the number of students who participated in both singing and cooking competitions?

   a. 30%

   b. 20%

   c. 40%

   d. 15%

   e. None of these

13. Questions

Find the sum of the number of students who participated in at least two competitions and the number of students who participated only in the singing competition.

    a. 1160

    b. 1240

    c. 1080

    d. 1420

    e. None of these

14. Questions

If the ratio of the total number of girls to boys in the school is 3:2 and the total number of girls who participated in all three competitions is $8/45^{th}$ of the total number of girls in the school, then find the total number of boys who participated in all three competitions?

    a. 150

    b. 170

    c. 160

    d. 180

    e. None of these

15. Questions

Find the ratio of the number of students who participated only in the dance competition to the sum of the number of students who participated only in the singing competition and only in the cooking competition.

    a. 7:3

    b. 3:1

    c. 5:4

    d. 1:1

    e. None of these

16. Questions

The sum of the present ages of Ram and Ravi is 80 years. The average present age of Priya, Ram and Ravi is (x+8) years and the ratio of the age of Ram 8 years hence to the age of Priya 5 years ago is 8:7. Find the difference between the present age of Ravi and Priya if Ram is 16 years younger than Ravi.

    a. (x/4)

b. 0.5x

c. 3x

d. (x+2)

e. 1.5x

17. Questions

The average number of people who prefer motor and pedal boating is (61X+Y). The total number of people who prefer motor boating is (18Y+2X) and the total number of people who prefer pedal boating is 9/16th of the total number of people who prefer (motor + pedal)boating. Find the ratio of the value of X to Y.

  a. 1:3

  b. 2:3

  c. 4:1

  d. 5:2

  e. None of these

18. Questions

The height of the cylinder is 'y' times the radius of the sphere and the volume of the cylinder is 12936 cm^3. The radius of the cylinder is 33.33% less than that of its height and the volume of the sphere is (4312/3) cm^3. If the radius and height of the cylinder are5y cm and (y + 4) cm respectively, then find the curved surface area of the cylinder.

  a. 704cm^2

  b. 660cm^2

  c. 528cm^2

  d. 968cm^2

  e. None of these

19. Questions

Amir and Mohan started a business with an investment of Rs.3400 and Rs.2800. After six months, Amir withdrew Rs.400 and Mohan added Rs.800 to its investment. At the end of 1.5 years, 25% of the total profit of the business is Rs.9700 and the profit share of Amir is Rs.P. If Ria invested Rs.P in simple interest at 15% per annum for 2 years, then find the interest received by Ria.

  a. Rs.5640

  b. Rs.9600

c. Rs.4320

d. Rs.6600

e. None of these

20. Questions

(X+20) men working at 8 hours per day can do a piece of work in Y days. Z men working at 4 hours per day can complete the same work in 10 days. If the average of the values of X and Y is 27.5 and the ratio of the value of Y to Z is 1:10, then find the value of Z.

a. 250

b. 300

c. 150

d. 200

e. None of these

21. Questions

A vessel contains 108 liters of a mixture of milk and water in the ratio of 5:4. X liters of the mixture is taken out and (x-10) liters of water is added to the mixture. Then the ratio of milk to water in the final mixture becomes 5:9. If x liters of milk and (x-3) liters of water are added to the initial mixture, then find the ratio of the quantity of milk to water in the resultant mixture.

a. 7:6

b. 4:3

c. 2:1

d. 8:7

e. 6:5

22. Questions

A shopkeeper earns a profit of 20% by selling the fan after giving a discount of 25% and the cost price of the fan is Rs.1250.The ratio of the selling price of the fan to the cycle is 5:y and the ratio of the marked price of the fan to the cycle is 16:33.If the cycle is sold after allowing a discount of 20%, then find the value of y.

a. 6

b. 9

c. 8

d. 11

e. 3

23. Questions

The train crosses (L – 40) m bridge in 19 seconds and the same train crosses a pole in 12 seconds. If the train crosses a man running at a speed of 36 km/hr in the opposite direction in 8 seconds, then find the time taken by the train to cross (2L – 30) platform.

a. 15.2 seconds

b. 28.5 seconds

c. 12.4 seconds

d. 20.5 seconds

e. 31.8 seconds

24. Questions

Boat A covers 39 km upstream in 26 minutes, while the time taken by the boat B cover 78 km downstream is the same as the time taken by the boat A cover 39 km upstream. The speed of boat A in still water is 25% more than that of boat B. Find the distance covered by boat B in upstream in 5 hours.

a. 100 km

b. 300 km

c. 450 km

d. 250 km

e. None of these

25. Questions

A invested Rs.5000 in simple interest at 15% per annum for X years and B invested Rs.7000 in simple interest at 20% per annum for (X+3) years. The ratio of the interest received by A to B is 3:8. If A invested the same amount in compound interest at 20% per annum for (X-5) years, then find the compound interest received by A.

a. Rs.2700

b. Rs.3600

c. Rs.4500

d. Rs.2200

e. None of these

26. Questions

Find out the wrong number in the following number series.

58, 50, 57, 82, 155, 392

---

a. 57

b. 50

c. 155

d. 392

e. 82

27. Questions

144, 36, 216, 54, 270, 45

a. 36

b. 216

c. 270

d. 54

e. 45

28. Questions

122, 171, 234, 353, 987

a. 234

b. 122

c. 171

d. 353

e. 987

29. Questions

783, 806, 762, 846, 678, 1014

a. 806

b. 678

c. 1014

d. 846

e. 762

30. Questions

9, 90, 154, 203, 239, 265

a. 239

b. 203

c. 154

d. 265

e. 90

31. Questions

The following question contains two equations as I and II. You have to solve both equations and determine the relationship between them and give the answer as,

I). $x^2 - 22x + 120 = 0$

II). $y^2 - 25y + 156 = 0$

a. $x > y$

b. $x \geq y$

c. $x = y$ or relationship can't be determined

d. $x < y$

e. $x \leq y$

32. Questions

I). $2x^2 - 19x + 39 = 0$

II). $y^2 - 11y + 30 = 0$

a. $x > y$

b. $x \geq y$

c. $x = y$ or relationship can't be determined

d. $x < y$

e. $x \leq y$

33. Questions

I). $x^2 + 2x - 48 = 0$

II). $y^2 + 20y + 96 = 0$

a. $x > y$

b. $x \geq y$

c. $x = y$ or relationship can't be determined

d. $x < y$

e. $x \le y$

34. Questions

I). $x^2 - 3x - 460 = 0$

II). $y^2 - 49y + 600 = 0$

  a. $x > y$

  b. $x \ge y$

  c. $x = y$ or relationship can't be determined

  d. $x < y$

  e. $x \le y$

35. Questions

I). $x^2 - 25x + 154 = 0$

II). $y^2 - 17y + 72 = 0$

  a. $x > y$

  b. $x \ge y$

  c. $x = y$ or relationship can't be determined

  d. $x < y$

  e. $x \le y$

36. Questions

What approximate value should come in the place of (?) in the following questions?

20 % of 749.977 + 21.956 % of 1600 = ? – 249.982

  a. 672

  b. 692

  c. 792

  d. 772

  e. 752

37. Questions

? % of 3500 – 63.976 % of 1500 + 189.987 = ?

  a. 22

b. 26

c. 28

d. 24

e. 20

38. Questions

$(356.02) \div 3.954 = ? + 74.011 - 95.956 \div 8$

a. 37

b. 56

c. 27

d. 15

e. 54

39. Questions

$879.987 \div 4.004 + ?^2 = \sqrt{(441.021)} + 454.983$

a. 24

b. 16

c. 22

d. 18

e. 20

40. Questions

$(186.053 * 19.980 - 669.977) \div 2 = ? * 4.991$

a. 345

b. 315

c. 325

d. 305

e. 355

Explanations:

1. Questions

In January:

The total number of insurance policies sold in private banks = 2400

The total number of insurance policies sold in public banks = 2400 + 150 = 2550

Similarly, we can calculate other values.

Months	Total number of policies sold in private banks	Total number of policies sold in public banks
January	2400	2550
February	2600	2800
March	2900	3250
April	3200	3500
May	3300	3400

Answer: C

In April,

Let the number of Life insurance policies sold in private and public banks be 7x and 10x respectively.

7x + (P + 600) = 3200

7x + P = 2600 ---(1)

10x + (P + 600) = 3500

10x + P = 2900 ---(2)

From equations (1) and (2),

x = 100

P = 1900

2. Questions

In January:

The total number of insurance policies sold in private banks = 2400

The total number of insurance policies sold in public banks = 2400 + 150 = 2550

Similarly, we can calculate other values.

Months	Total number of policies sold in private banks	Total number of policies sold in public banks
January	2400	2550
February	2600	2800
March	2900	3250
April	3200	3500
May	3300	3400

Answer: B

The total number of insurance policies sold to females in public banks in March and May together= (3300 + 3400) – 4050 = 6650-4050= 2600

The number of insurance policies sold to females in public banks in May = (2600/13) *8= 1600

The required % =1600/3200 * 100 = 50%

3. Questions

In January:

The total number of insurance policies sold in private banks = 2400

The total number of insurance policies sold in public banks = 2400 + 150 = 2550

Similarly, we can calculate other values.

Months	Total number of policies sold in private banks	Total number of policies sold in public banks
January	2400	2550
February	2600	2800
March	2900	3250
April	3200	3500
May	3300	3400

Answer: D

The total number of insurance policies sold in public banks in January and March together = 2550 + 3250 = 5800

Required ratio = 2600:5800 = 13:29

4. Questions

In January:

The total number of insurance policies sold in private banks = 2400

The total number of insurance policies sold in public banks = 2400 + 150 = 2550

Similarly, we can calculate other values.

Months	Total number of policies sold in private banks	Total number of policies sold in public banks
January	2400	2550
February	2600	2800
March	2900	3250
April	3200	3500
May	3300	3400

Answer: A

The total number of insurance policies sold in private banks in June= 2400 + 2000 = 4400

The total number of insurance policies sold in both banks in February = 2600 + 2800 = 5400

The total number of insurance policies sold in both banks in June = 5400 * (27 + 19)/27 = 5400 * 46/27 = 9200

The total number of insurance policies sold in public banks in June = 9200 – 4400 = 4800

2X = 4800

X = 2400

Required value = (X/3)+120= (2400/3) +120 = 800+120 = 920

5. Questions

In January:

The total number of insurance policies sold in private banks = 2400

The total number of insurance policies sold in public banks = 2400 + 150 = 2550

Similarly, we can calculate other values.

Months	Total number of policies sold in private banks	Total number of policies sold in public banks
January	2400	2550
February	2600	2800
March	2900	3250
April	3200	3500
May	3300	3400

Answer: C

The difference between the total number of insurance policies sold in private banksin January and April = 3200 – 2400 = 800

800 = S + 600

S = 200

The difference between the total number of insurance policies sold in public banks in January and the total number of insurance policies sold in private banks in May = 3300 – 2550 = 750

Required values = (3S + 150) = (3 * 200 + 150) = 750

6. Questions

Monday:

The number of LED TVs sold = 440

The number of LCD TVs sold = (440/55)*45 = 360

The total number of TVs sold = 440 + 360 = 800

Tuesday:

The number of LED TVs sold = 220

The number of LCD TVs sold = 220 * 56/(100 – 56) = 280

The total number of TVs sold = 220 + 280 = 500

Wednesday:

The number of LED TVs sold = 240

The number of LCD TVs sold = (240/40)*60 = 360

The total number of TVs sold = 240 + 360 = 600

Thursday:

The number of LED TVs sold = 490

The number of LCD TVs sold = (490/70)*30 = 210

The total number of TVs sold = 490 + 210 = 700

Friday:

The number of LED TVs sold = 160

The number of LCD TVs sold = 160 * 60/(100 – 60) = 240

The total number of TVs sold = 160 + 240 = 400

Days	The total number of TVs sold	The number of LED TVs sold	The number of LCD TVs sold
Monday	800	440	360
Tuesday	500	220	280
Wednesday	600	240	360
Thursday	700	490	210
Friday	400	160	240

Answer: C

Let the number of 32-inch LED TVs sold on Tuesday and Friday be 11X and 15X respectively.

Let the number of 55-inch LED TVs sold on Tuesday and Friday be 11Y and 1Y respectively.

11X+11Y = 220 ------ 1

15X+ Y = 160 ------ 2

By solving 1 and 2,we get

X = 10; Y =10

The number of32-inch LED TVs sold on Friday = 15 * 10 = 150

7. Questions

Monday:

The number of LED TVs sold = 440

The number of LCD TVs sold = (440/55)*45 = 360

The total number of TVs sold = 440 + 360 = 800

Tuesday:

The number of LED TVs sold = 220

The number of LCD TVs sold = 220 * 56/(100 – 56) = 280

The total number of TVs sold = 220 + 280 = 500

Wednesday:

The number of LED TVs sold = 240

The number of LCD TVs sold = (240/40)*60 = 360

The total number of TVs sold = 240 + 360 = 600

Thursday:

The number of LED TVs sold = 490

The number of LCD TVs sold = (490/70)*30 = 210

The total number of TVs sold = 490 + 210 = 700

Friday:

The number of LED TVs sold = 160

The number of LCD TVs sold = 160 * 60/(100 – 60) = 240

The total number of TVs sold = 160 + 240 = 400

Days	The total number of TVs sold	The number of LED TVs sold	The number of LCD TVs sold
Monday	800	440	360
Tuesday	500	220	280
Wednesday	600	240	360
Thursday	700	490	210
Friday	400	160	240

Answer: C

The number of LED TVs sold on Saturday = 210 * (3 + 1)/3 = 210 * 4/3 = 280

The total number of TVs sold on Saturday = 800*11/16 = 550

The number of LCD TVs sold on Saturday = 550 -280 = 270

4/X = 360/270

4/X = 4/3

X = 3

Required value = $4X^2$ = 4 * (3^2) = 36

8. Questions

Monday:

The number of LED TVs sold = 440

The number of LCD TVs sold = (440/55)*45 = 360

The total number of TVs sold = 440 + 360 = 800

Tuesday:

The number of LED TVs sold = 220

The number of LCD TVs sold = 220 * 56/(100 – 56) = 280

The total number of TVs sold = 220 + 280 = 500

Wednesday:

The number of LED TVs sold = 240

The number of LCD TVs sold = (240/40)*60 = 360

The total number of TVs sold = 240 + 360 = 600

Thursday:

The number of LED TVs sold = 490

The number of LCD TVs sold = (490/70)*30 = 210

The total number of TVs sold = 490 + 210 = 700

Friday:

The number of LED TVs sold = 160

The number of LCD TVs sold = 160 * 60/(100 – 60) = 240

The total number of TVs sold = 160 + 240 = 400

Days	The total number of TVs sold	The number of LED TVs sold	The number of LCD TVs sold
Monday	800	440	360
Tuesday	500	220	280
Wednesday	600	240	360
Thursday	700	490	210
Friday	400	160	240

Answer: A

The total number of TVs sold to males on Tuesday = 500 * 72/100 = 360

The total number of TVs sold to females on Tuesday = 500 – 360 = 140

The number of LCD TVs sold to females on Tuesday = 140 * 3/(4 + 3) = 60

The number of LCD TVs sold to males on Tuesday = 280 – 60 = 220

The number of LCD TVs sold to males on Friday = 330 – 220 = 110

The number of LCD TVs sold to females on Friday = 240 – 110 = 130

9. Questions

Monday:

The number of LED TVs sold = 440

The number of LCD TVs sold = (440/55)*45 = 360

The total number of TVs sold = 440 + 360 = 800

Tuesday:

The number of LED TVs sold = 220

The number of LCD TVs sold = 220 * 56/(100 – 56) = 280

The total number of TVs sold = 220 + 280 = 500

Wednesday:

The number of LED TVs sold = 240

The number of LCD TVs sold = (240/40)*60 = 360

The total number of TVs sold = 240 + 360 = 600

Thursday:

The number of LED TVs sold = 490

The number of LCD TVs sold = (490/70)*30 = 210

The total number of TVs sold = 490 + 210 = 700

Friday:

The number of LED TVs sold = 160

The number of LCD TVs sold = 160 * 60/(100 – 60) = 240

The total number of TVs sold = 160 + 240 = 400

Days	The total number of TVs sold	The number of LED TVs sold	The number of LCD TVs sold
Monday	800	440	360
Tuesday	500	220	280
Wednesday	600	240	360
Thursday	700	490	210
Friday	400	160	240

Answer: D

The number of LED TVs sold on Sunday = 410 * 2 – 490 = 820 – 490 = 330

The number of LCD TVs sold on Sunday = 240 * 1.5 = 360

The total number of TVs sold on Sunday = 330 + 360 = 690

Required % = 690/600 * 100 = 115%

10. Questions

Monday:

The number of LED TVs sold = 440

The number of LCD TVs sold = (440/55)*45 = 360

The total number of TVs sold = 440 + 360 = 800

Tuesday:

The number of LED TVs sold = 220

The number of LCD TVs sold = 220 * 56/(100 – 56) = 280

The total number of TVs sold = 220 + 280 = 500

Wednesday:

The number of LED TVs sold = 240

The number of LCD TVs sold = (240/40)*60 = 360

The total number of TVs sold = 240 + 360 = 600

Thursday:

The number of LED TVs sold = 490

The number of LCD TVs sold = (490/70)*30 = 210

The total number of TVs sold = 490 + 210 = 700

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The number of LED TVs sold = 160

The number of LCD TVs sold = 160 * 60/(100 – 60) = 240

The total number of TVs sold = 160 + 240 = 400

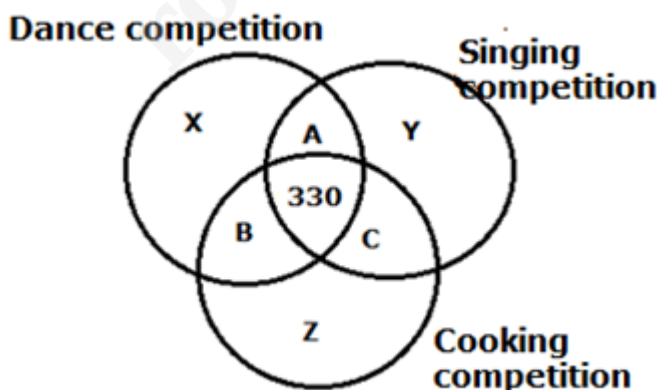| Days	The total number of TVs sold	The number of LED TVs sold	The number of LCD TVs sold
Monday	800	440	360
Tuesday	500	220	280
Wednesday	600	240	360
Thursday	700	490	210
Friday	400	160	240

Answer: D

The total number of LCD TVs sold on Monday and Thursday together = 360 + 210 = 570

The total number of LED TVs sold on Wednesday and Tuesday together = 220 + 240 = 460

The required difference = 570 – 460 = 110

11. Questions

The total number of students in the school = 1500

The number of students who participated in all three competitions = 330

The number of students who participated only in the dance competition, X = 19% * 1500 = 285

The total number of students who participated in the dance competition = 63%*1500= (63*1500)/100 = 945

Let the number of students who participated in both dance and singing competitions but not in the cooking competition be A.

And the number of students who participated in both dance and cooking competitions but not in the singing competition = B = A – 30

285 + A + (A - 30) + 330 = 945

2A+585 = 945

2A = 360

A = 180

The number of students who participated in both dance and singing competitions but not in the cooking competition = A = 180

The number of students who participated in both dance and cooking competitions but not in the singing competition = B = 180 – 30 = 150

The total number of students who participated in exactly two competitions = A+B+C =40%*1500 = 600
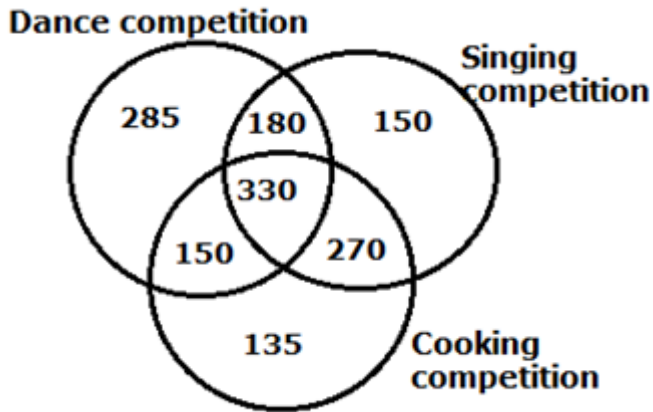
A + B + C = 600

180 + 150 + C = 600

C = 270

The number of students who participated in both cooking and singing competitions but not in the dance competition = C = 270

The total number of students who participated in the singing competition but not in the dance competition = Y + C = 1500 * 7/25 = 420

The number of students who participated only in the singing competition = Y = 420 – 270 = 150

The number of students who participated only in the cooking competition = Z = 1500 – (945 + 150 + 270) = 1500 – 1365 = 135

Dance competition

Singing competition

285   180   150
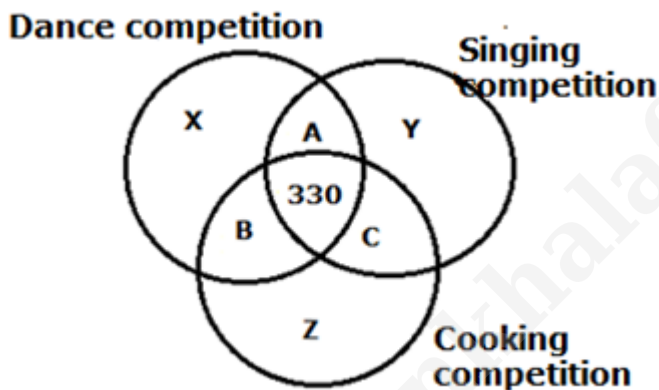
330

150   270

135   **Cooking competition**

Answer: D

The total number of students who participated in the cooking competition = 150 + 330 + 270 + 135 = 885

The total number of students who participated in the dance competition but not in the singing competition = 285 + 150 = 435

The required difference = (885 – 435) = 450

12. Questions

Dance competition

Singing competition

X   A   Y

330

B   C

Z   **Cooking competition**

The total number of students in the school = 1500

The number of students who participated in all three competitions = 330

The number of students who participated only in the dance competition, X = 19% * 1500 = 285

The total number of students who participated in the dance competition = 63%*1500= (63*1500)/100 = 945

Let the number of students who participated in both dance and singing competitions but not in the cooking competition be A.

And the number of students who participated in both dance and cooking competitions but not in the singing competition = B = A – 30

285 + A + (A - 30) + 330 = 945

2A+585 = 945

2A = 360

A = 180

The number of students who participated in both dance and singing competitions but not in the cooking competition = A = 180

The number of students who participated in both dance and cooking competitions but not in the singing competition = B = 180 – 30 = 150

The total number of students who participated in exactly two competitions = A+B+C =40%*1500 = 600
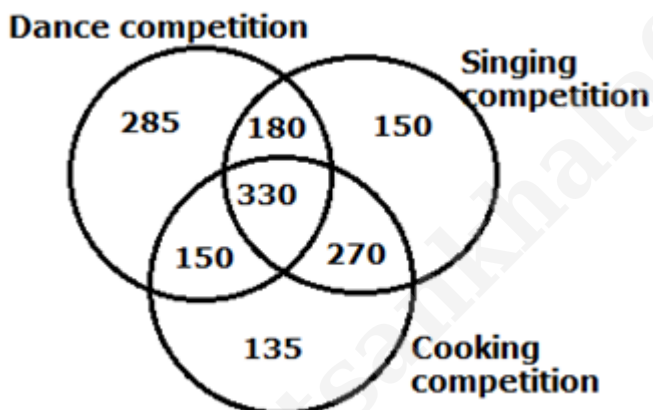
A + B + C = 600

180 + 150 + C = 600

C = 270

The number of students who participated in both cooking and singing competitions but not in the dance competition = C = 270

The total number of students who participated in the singing competition but not in the dance competition = Y + C = 1500 * 7/25 = 420

The number of students who participated only in the singing competition = Y = 420 – 270 = 150

The number of students who participated only in the cooking competition = Z = 1500 – (945 + 150 + 270) = 1500 – 1365 = 135
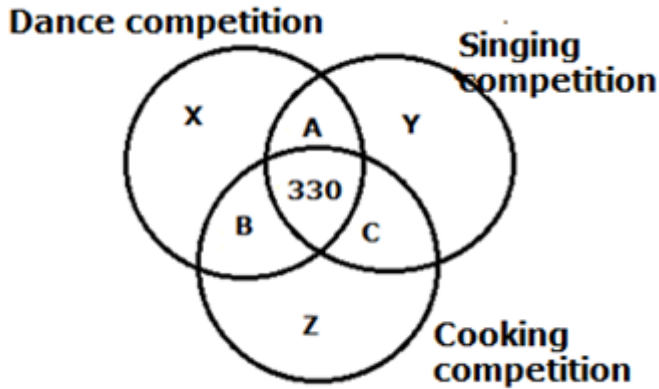
Dance competition

285 180 150

330

150 270

135 **Cooking competition**

Singing competition

Answer: A

The number of students who participated in both singing and cooking competitions = 330 + 270 = 600

The required % = 180 * 100/600= 30%

13. Questions

The total number of students in the school = 1500

The number of students who participated in all three competitions = 330

The number of students who participated only in the dance competition, X = 19% * 1500 = 285

The total number of students who participated in the dance competition = 63%*1500= (63*1500)/100 = 945

Let the number of students who participated in both dance and singing competitions but not in the cooking competition be A.

And the number of students who participated in both dance and cooking competitions but not in the singing competition = B = A – 30

285 + A + (A - 30) + 330 = 945

2A+585 = 945

2A = 360

A = 180

The number of students who participated in both dance and singing competitions but not in the cooking competition = A = 180

The number of students who participated in both dance and cooking competitions but not in the singing competition = B = 180 – 30 = 150

The total number of students who participated in exactly two competitions = A+B+C =40%*1500 = 600

A + B + C = 600

180 + 150 + C = 600

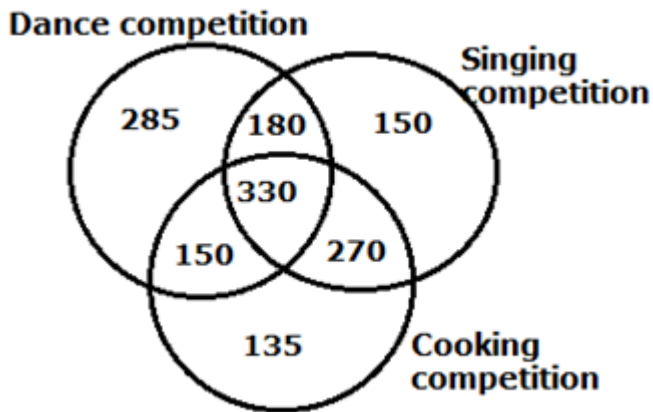C = 270

The number of students who participated in both cooking and singing competitions but not in the dance competition = C = 270

The total number of students who participated in the singing competition but not in the dance competition = Y + C = 1500 * 7/25 = 420

The number of students who participated only in the singing competition = Y = 420 – 270 = 150

The number of students who participated only in the cooking competition = Z = 1500 – (945 + 150 + 270) = 1500 – 1365 = 135
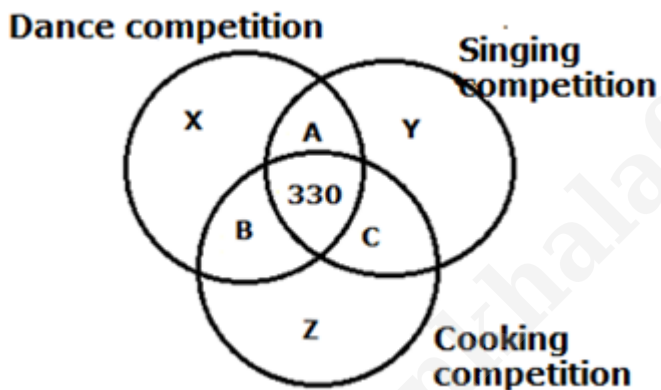

Answer: C

The number of students who participated in at least two competitions = 150 + 180 + 270 + 330 = 930

The required sum = 930 + 150 = 1080

14. Questions

The total number of students in the school = 1500

The number of students who participated in all three competitions = 330

The number of students who participated only in the dance competition, X = 19% * 1500 = 285

The total number of students who participated in the dance competition = 63%*1500= (63*1500)/100 = 945

Let the number of students who participated in both dance and singing competitions but not in the cooking competition be A.

And the number of students who participated in both dance and cooking competitions but not in the singing competition = B = A – 30

285 + A + (A - 30) + 330 = 945

2A+585 = 945

2A = 360

A = 180

The number of students who participated in both dance and singing competitions but not in the cooking competition = A = 180

The number of students who participated in both dance and cooking competitions but not in the singing competition = B = 180 – 30 = 150

The total number of students who participated in exactly two competitions = A+B+C =40%*1500 = 600

A + B + C = 600

180 + 150 + C = 600
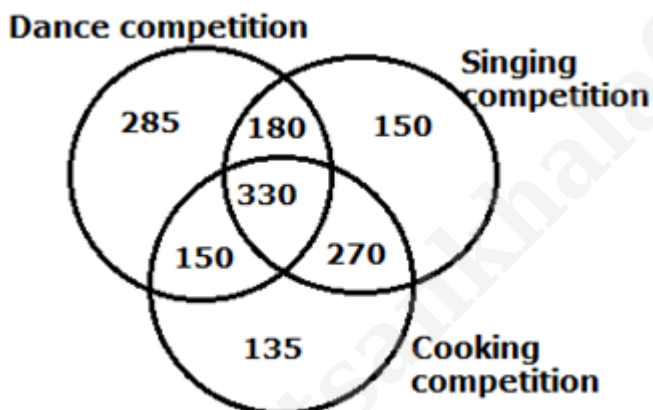
C = 270

The number of students who participated in both cooking and singing competitions but not in the dance competition = C = 270

The total number of students who participated in the singing competition but not in the dance competition = Y + C = 1500 * 7/25 = 420

The number of students who participated only in the singing competition = Y = 420 – 270 = 150

The number of students who participated only in the cooking competition = Z = 1500 – (945 + 150 + 270) = 1500 – 1365 = 135
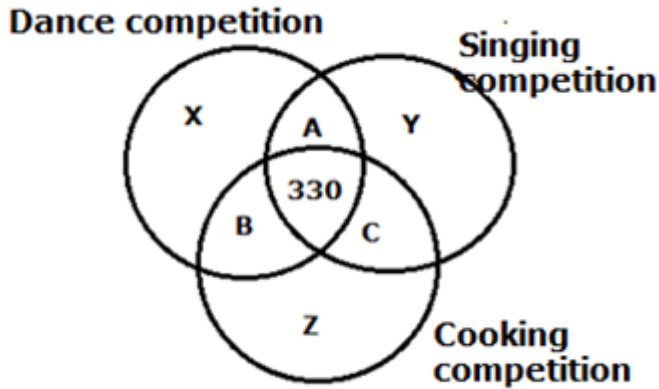

Answer: B

The total number of girls in the school = (1500* 3)/5 = 900

The total number of girls who participated in all three competitions = (8* 900)/45 =160

The total number of boys who participated in all three competitions = (330-160) = 170

15. Questions

Dance competition — Singing competition — Cooking competition

The total number of students in the school = 1500

The number of students who participated in all three competitions = 330

The number of students who participated only in the dance competition, X = 19% * 1500 = 285

The total number of students who participated in the dance competition = 63%*1500= (63*1500)/100 = 945

Let the number of students who participated in both dance and singing competitions but not in the cooking competition be A.

And the number of students who participated in both dance and cooking competitions but not in the singing competition = B = A – 30

285 + A + (A - 30) + 330 = 945

2A+585 = 945

2A = 360

A = 180

The number of students who participated in both dance and singing competitions but not in the cooking competition = A = 180

The number of students who participated in both dance and cooking competitions but not in the singing competition = B = 180 – 30 = 150

The total number of students who participated in exactly two competitions = A+B+C =40%*1500 = 600
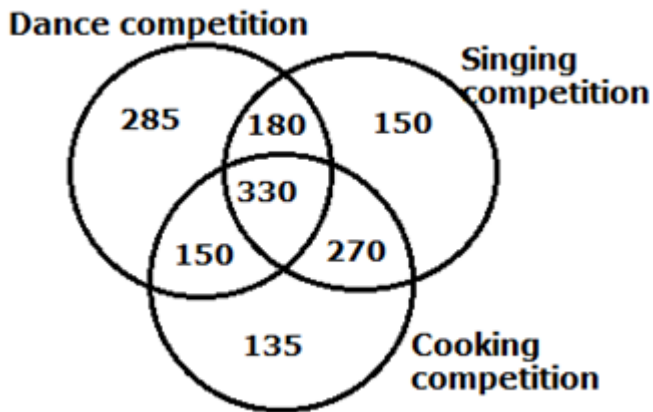
A + B + C = 600

180 + 150 + C = 600

C = 270

The number of students who participated in both cooking and singing competitions but not in the dance competition = C = 270

The total number of students who participated in the singing competition but not in the dance competition = Y + C = 1500 * 7/25 = 420

The number of students who participated only in the singing competition = Y = 420 – 270 = 150

The number of students who participated only in the cooking competition = Z = 1500 – (945 + 150 + 270) = 1500 – 1365 = 135

Answer: D

The sum of the number of students who participated only in the cooking competition and only in the singing competition = 150 + 135 = 285

The required ratio = 285:285 = 1:1

16. Questions

Answer: A

Ram +Ravi = 80 ----- 1

Ram + 16 = Ravi ----- 2

Solving equations (1) and (2), we get

The present age of Ram = (80 – 16)/2 = 64/2 = 32 years

The present age of Ravi = 80 – 32 = 48 years

The present age of Priya = (32 + 8) * 7/8 + 5 = 40 * 7/8 + 5 = 35 + 5 = 40 years

The average present age of Priya, Ram and Ravi = (32 + 48 + 40)/3 = 120/3 = 40 years

(x + 8) = 40

x = 32

The difference between the present age of Ravi and Priya = 48 – 40 = 8 years

Required value= (x/4) = 32/4 = 8

17. Questions

Answer: A

The total number of people who prefer motor and pedal boating together = 2(61X+Y)

The total number of people who prefer motor boating = (18Y+2X)

The total number of people who prefer pedal boating = 2(61X+Y) * 9/16

$9/16*(2(61X+Y)) + (18Y+2X) = 2(61X+Y)$

$9/8*(61X+Y) + (18Y+2X) = 122X+2Y$

$(122Y+2X) * 8 = 144Y + 16X + 549X + 9Y$

$976X – 565X = 153Y – 16Y$

$411X = 137Y$

$X/Y =1/3$

Required ratio = 1:3

18. Questions

Answer: B

Let the radius of the cylinder be 2x cm.

And the height of the cylinder = $2x * 100/(100 – 33.33) = 2x * 3/2 = 3x$

The volume of the cylinder = 12936 cm^3

$\pi*r^2*h = 12936$

$22/7 * (2x)^2 * 3x = 12936$

$4x^2 * 3x = 4116$

$x^3 = 343 = 7^3$

$x = 7$

The height of the cylinder = 3 * 7 = 21 cm

The volume of the sphere = (4312/3) cm^3

$4/3 * \pi r^3 = 4312/3$

$r^3 = 343 = 7^3$

r = 7

y = 21/7 = 3

The new radius of the cylinder = 5y = 5 * 3 = 15 cm

The new height of the cylinder =y + 4 = 3 + 4 = 7 cm

The new curved surface area of the cylinder = 2 * 22/7 * 15 * 7 = 660 cm^2

19. Questions

Answer: A

Ratio of the profit share of Amir to Mohan = (3400 * 6 + (3400 – 400) * 12):(2800 * 6 + (2800 + 800) *

12) = (34 + 60):(28 + 72) = 47:50

The total profit of the business = 9700 * 100/25 = Rs.38800

The profit share of Amir = 38800 * 47/(47 + 50) = 38800 * 47/97 = Rs.18800

The interest received by Ria = 18800 * 15 * 2/100 = Rs.5640

20. Questions

Answer: A

The sum of the values of X and Y = 27.5 * 2 = 55

Let the values of Y and Z be 1a and 10a respectively.

(X+20) * Y* 8 = Z *10*4

(X+20)* (1a) *8 = (10a) *10*4

X+20 = 50

X = 30

X+Y = 55

Y = 55-30 = 25

Z = 25 * 10/1 = 250

21. Questions

Answer: A

The amount of milk in the initial mixture = (108* 5)/9 = 60 liters

The amount of water in the mixture = (108*4)/9 = 48 liters

[60-(5x/9)]/[(48-(4x/9)+(x-10)] =5/9

[(540-5x)/9]/[(432-4x+9x-90)/9] = 5/9

(540-5x)/(342+5x) =5/9

4860-45x = 1710+25x

70x = 3150

x =45

The amount of milk in the resultant mixture = 60 + 45 = 105 liters

The amount of water in the resultant mixture = 48 + (45 – 3) = 48 + 42 = 90 liters

Required ratio = 105:90 = 7:6

22. Questions

Answer: D

The selling price of the fan = (1250/100)*120 = Rs.1500

The marked price of the fan = 1500 * 100/75 = Rs.2000

The marked price of the cycle = 2000 * 33/16 = Rs.4125

The selling price of the cycle = 4125 * 80/100 = Rs.3300

1500/3300 = 5/y

5/11 = 5/y

y = 11

23. Questions

Answer: B

Let the length of the train be X m.

Let the speed of the train be S m/s.

The speed of the man = 36 * 5/18 = 10 m/s

X = S * 12 ---(1)

X = (S + 10) * 8

X = 8S + 80 ---(2)

From equations (1) and (2),

12S = 8S + 80

S = 80/4 = 20 m/s

X = 20 * 12 = 240 m

240 + (L – 40) = 20 * 19

200 + L = 380

L = 180

The length of the platform = 2L – 30 = 2 * 180 – 30 = 330

Required time = (240+330)/20 = 570/20 = 28.5 seconds

24. Questions

Answer: B

Upstream speed of boat A = (39*60)/26= 90 km/hr

Downstream speed of boat B = (78* 60)/26 = 180 km/hr

Let the boat speed of boat A in still water be 5x.

And the speed of boat B in still water= 5x * 100/125 = 4x

Let the speed of the stream be y km/hr.

5x – y = 90 ---(1)

4x + y = 180 ---(2)

By solving 1 and 2,

x = 30 and y=60

The speed of boat B in still water = 4 * 30 = 120 km/hr

Upstream speed of boat B = 120 – 60 = 60 km/hr

The distance covered by boat B in upstream = 5 * 60 = 300 km

25. Questions

Answer: D

[5000*15*X/100]/[7000*20*(X+3)/100] =3/8

[5*3*X]/[7*4*(X+3)]= 3/8

(15X)/[28(X+3)] =3/8

5X/[7(X+3)] = 1/2

10X =7X+21

3X = 21

X = 7

Investment period of A in C.I. = X – 5 = 7 – 5 = 2 years

Compound interest received by A = $5000 * (1 + 20/100)^2 – 5000 = 5000 * (120/100)^2 – 5000 = 5000 * (144 – 100)/100 = 5000 * 44/100$ = Rs.2200

26. Questions

Answer: D

(58 – 8) * 1 = 50

(50 – 12) * 1.5 = 57

(57 – 16) * 2 = 82

(82 – 20) * 2.5 = 155

(155 – 24) * 3 = **393**

27. Questions

Answer: A

144 ÷ 2 = **72**

72 * 3 = 216

216 ÷ 4 = 54

54 * 5 = 270

$270 \div 6 = 45$

28. Questions

Answer: E

$11^2 + 1^0 = 122$

$13^2 + 2^1 = 171$

$15^2 + 3^2 = 234$

$17^2 + 4^3 = 353$

$19^2 + 5^4 = \mathbf{986}$

29. Questions

Answer: A

$783 + 21 = \mathbf{804}$

$804 - 42 = 762$

$762 + 84 = 846$

$846 - 168 = 678$

$678 + 336 = 1014$

30. Questions

Answer: D

$9 + 9^2 = 90$

$90 + 8^2 = 154$

$154 + 7^2 = 203$

$203 + 6^2 = 239$

$239 + 5^2 = \mathbf{264}$

31. Questions

Answer: E

$x^2 - 22x + 120 = 0$

$x^2 - 12x - 10x + 120 = 0$

$x(x - 12) - 10(x - 12) = 0$

$(x - 12)(x - 10) = 0$

x = 12, 10

$y^2 - 25y + 156 = 0$

$y^2 - 13y - 12y + 156 = 0$

$y(y - 13) - 12(y - 13) = 0$

$(y - 13)(y - 12) = 0$

y = 13, 12

So, x ≤ y

32. Questions

Answer: C

$2x^2 - 19x + 39 = 0$

$2x^2 - 6x - 13x + 39 = 0$

$2x(x - 3) - 13(x - 3) = 0$

$(2x - 13)(x - 3) = 0$

x = 3, 13/2

$y^2 - 11y + 30 = 0$

$y^2 - 6y - 5y + 30 = 0$

$y(y - 6) - 5(y - 6) = 0$

$(y - 6)(y - 5) = 0$

y = 5, 6

The relationship can't be determined between x and y.

33. Questions

Answer: B

$x^2 + 2x - 48 = 0$

$x^2 + 8x - 6x - 48 = 0$

$x(x + 8) - 6(x + 8) = 0$

$(x + 8)(x - 6) = 0$

x = 6, -8

$y^2 + 20y + 96 = 0$

$y^2 + 12y + 8y + 96 = 0$

$y(y + 12) + 8(y + 12) = 0$

$(y + 12) (y + 8) = 0$

$y = -12, -8$

So, x ≥ y

34. Questions

Answer: D

$x^2 - 3x - 460 = 0$

$x^2 - 23x + 20x - 460 = 0$

$x(x - 23) + 20(x - 23) = 0$

$(x + 20) (x - 23) = 0$

$x = 23, -20$

$y^2 - 49y + 600 = 0$

$y^2 - 24y - 25y + 600 = 0$

$y(y - 24) - 25(y - 24) = 0$

$(y - 24) (y - 25) = 0$

$y = 24, 25$

So, x < y

35. Questions

Answer: A

$x^2 - 25x + 154 = 0$

$x^2 - 14x - 11x + 154 = 0$

$x(x - 14) - 11(x - 14) = 0$

$(x - 14)(x - 11) = 0$

$x = 11, 14$

$y^2 - 17y + 72 = 0$

$y^2 - 9y - 8y + 72 = 0$

$y(y - 9) - 8(y - 9) = 0$

$(y - 9)(y - 8) = 0$

$y = 8, 9$

So,x > y

36. Questions

Answer: E

20 % of 749.977 + 21.956 % of 1600 = ? – 249.982

20 % of 750 + 22 % of 1600 = ? – 250

150 + 336 = ? – 250

486 + 250 = ?

752 = ?

37. Questions

Answer: A

? % of 3500 – 63.976 % of 1500 + 189.987 = ?

? % of 3500 – 960 + 190 = ?

? % of 3500 – 770 = ?

(? / 100) * 3500 = 770

? = (770 / 3500) * 100

? = 22

38. Questions

Answer: C

(356.02) ÷ 3.954 = ? + 74.011 – 95.956 ÷ 8

(356) ÷ 4 = ? + 74 – 96 ÷ 8

356 ÷ 4 = ? + 74 – 12

89 = ? + 62

89 – 62 = ?

27 = ?

39. Questions

Answer: B

$879.987 ÷ 4.004 + ?^2 = \sqrt{(441.021)} + 454.983$

$880 ÷ 4 + ?^2 = \sqrt{(441)} + 455$

$220 + ?^2 = 21 + 455$

$220 + ?^2 = 476$

$?^2 = 476 - 220$

$?^2 = 256$

$? = 16$

40. Questions

Answer: D

$(186.053 * 19.980 - 669.977) \div 2 = ? * 4.991$

$(186 * 20 - 670) \div 2 = ? * 5$

$(3720 - 670) \div 2 = ? * 5$

$3050 \div 2 = ? * 5$

$1525 = ? * 5$

$1525 \div 5 = ?$

$305 = ?$