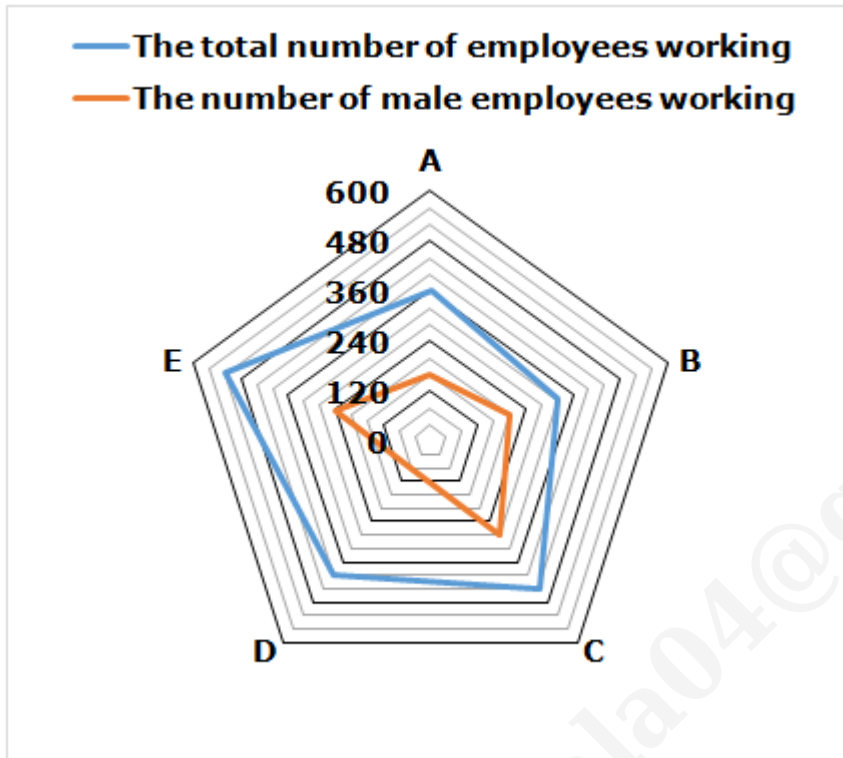**1.** Questions

Study the following information carefully and answer the questions.

The given radar graph shows the total number of employees working in five different companies namely A, B, C, D, and E in 2010 and also given the number of male employees working in these five companies in 2010.

If the total number of employees working in Company B in 2011 is 50% more than the previous year and the ratio of the number of male to female employees working in Company B in 2011 is 5:3, then the number of female employees working in Company B in 2011 is what percentage of the total number of employees working in Company A in 2010?

    a. 35%

    b. 45%

    c. 40%

    d. 50%

    e. 25%

2. Questions

In Company C, the number of male employees working in the sales department is 60% more than the number of female employees working in the same department and the ratio of the number of male to female employees working in the HR department is 2:1. Find the total number of employees working in the sales department in Company C.(Employees are working in sales and HR department only)

    a. 260

b. 240

c. 340

d. 180

e. 105

3. Questions

Find the ratio of the total number of male employees working in Companies B and C together to the number of female employees working in Company D.

a. 5:4

b. 3:5

c. 3:2

d. 7:8

e. 6:5

4. Questions

The number of male employees working in Company F is x% more than that of Company E and the number of female employees working in Company F is (2x + 10) more than the sum of the number of female employees working in Companies B and C. If the total number of employees working in Company F is (2x + 10)% more than that of Company D, then find the value of x.

a. 48

b. 53

c. 38

d. 57

e. 25

5. Questions

If (5.5a + 12.5)male employees and (6.5a - 7.5) female employees working in Company A got promotions and the ratio of the number of male to female employees who did not get promotion in Company A is 24:35, then find the number of male employees who did not get promotion in Company A.

a. 132

b. 120

c. 145

d. 155

e. 127

6. Questions

Study the following information carefully and answer the questions.

The given bar graph shows the number of roses sold, the number of lotuses sold and the number of lilies sold in four different shops namely I, J, K, and L.

Note:

I). The total number of flowers sold = The number of roses sold + The number of lotuses sold + The number of lilies sold

II). The total number of flowers sold in shop L is 520 more than that of shop J.
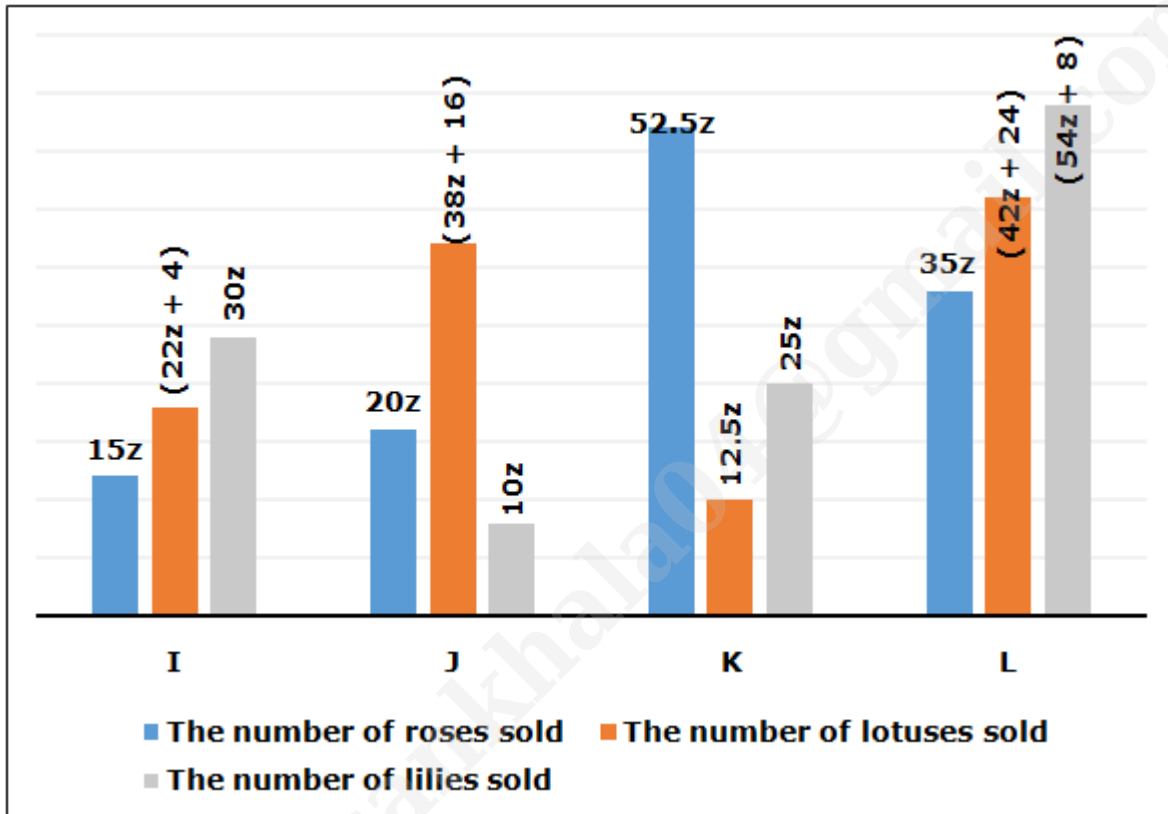
Find the difference between the sum of the number of lotuses sold in shops I, K, and L together and the sum of the number of lilies sold in shops I, J, and L together.

    a. 170

    b. 150

    c. 120

    d. 135

    e. 145

7. Questions

The average number of roses, lotuses, lilies and tulips sold in shop K is $(9b + 20)$. If the number of tulips sold in shop K is 100 less than the average number of roses, lotuses and lilies sold in shop L, then find the value of b.

a. 65

b. 30

c. 75

d. 40

e. 25

8. Questions

The total number of red roses and lilies sold together in shop L is (34y + 60) and the number of white roses sold in shop L is 12y. If the total number of white roses and lilies sold in shop L is 320, then find the ratio of the number of red roses to red lilies sold in shop L. (only white and red flowers are sold)

a. 4:5

b. 2:3

c. 3:4

d. 2:5

e. 6:5

9. Questions

The number of roses sold in shop M is 10z more than that of shop I and the number of lotuses sold in shop M is $(2z + 4)\%$ more than that of shop K and the number of lilies sold in shop J is $1/z^{th}$ of the total number of(Roses + Lotuses + Lilies) flowers sold in shop M. Find the number of lilies sold in shop M.

a. 280

b. 300

c. 360

d. 320

e. 240

10. Questions

The ratio of the number of white lotuses sold in shop I to shop J is 1:2 and the ratio of the number of pink lotuses sold in shop I to shop J is 2:3. The number of pink lotuses sold in shop J what percentage of the number of white lotuses sold in shop I? (Only white and pink lotuses are sold)

a. 125%

b. 110%

c. 150%

d. 120%

e. 100%

11. Questions

Read the following information carefully and answer the questions.

A certain number of people are in a village in 2018 and they like three types of mobile phones namely Samsung, Vivo, and Nokia. The number of people who like Samsung mobiles is 780 and the ratio of the number of people who like only Samsung mobiles to the number of people who like only Vivo mobiles is 2:3. The number of people who like only Samsung mobiles is 320. The number of people who like both Samsung and Vivo mobiles but not Nokia mobiles is 102. The number of people who like only Nokia mobiles is 100 more than the number of people who like only Samsung mobiles. The total number of people who like all three types of mobile phones is 37.5% less than the number of people who like only Samsung mobiles. The total number of people who like Vivo mobiles is 920.

The number of people who like both Samsung and Nokia mobiles but not Vivo mobiles is approximately what percentage more or less than the number of people who like both Vivo and Nokia mobiles but not Samsung mobiles?

   a. 14% less

   b. 18% more

   c. 22% less

   d. 14% more

   e. 12% more

12. Questions

If the number of people who like only Samsung mobiles in 2019 is 12.5% more than the number of people who like only Vivo mobiles in 2018, then find the sum of the number of people who like only Samsung mobiles in 2018 and 2019 together.

   a. 840

   b. 860

   c. 740

   d. 1080

   e. 675

13. Questions

Find the difference between the number of people who don't like Vivo mobiles and the number of people who like exactly two mobile phones.

   a. 630

   b. 555

c. 500

d. 777

e. 520

14. Questions

The ratio of the number of males who like only Samsung to only Vivo mobiles is 3:5.The number of females who like only Vivo mobiles is 80 more than the total number of people who like all three mobile phones. Find the difference between the number of males and females who like only Samsung mobiles.

a. 80

b. 75

c. 66

d. 70

e. 187

15. Questions

Find the sum of the number of people who like exactly one mobile phone.

a. 1333

b. 1174

c. 1080

d. 1375

e. 1220

16. Questions

A bag contains x pink balls, 6brown balls and 10green balls. If two balls are chosen at random and the probability of selecting at least one pink ball is 7/19, then find the value of x.

a. 10

b. 4

c. 3

d. 7

e. 8

17. Questions

A and B started a business with investments of Rs. (5.5a - 200) and Rs. (3a + 400) respectively. After 7 months, A withdrew Rs. 1400 from his investment and after three more months,

B added Rs. 2100 to his investment. At the end of one year, the ratio of the profit obtained by A to B is 31:27. Find the difference between the initial investment of A and B.

a. Rs. 2000

b. Rs. 1800

c. Rs. 1100

d. Rs. 1400

e. None of these

18. Questions

220 litres of mixture contains (6.5c + 10) litres of milk and (4.5c - 10) litres of water. 20% of the mixture is removed and (4z + 6) liters of milk and (3z + 12) liters of water is added, then the ratio of milk to water becomes 3:2. Find the quantity of milk added to the mixture.

a. 38 liters

b. 70 liters

c. 20 liters

d. 15 liters

e. 25 liters

19. Questions

The age of I after 3 years is 200% of the age of J before 6 years. The age of I after 11 years is $22/5^{th}$ of the age of K before 3 years and the present age of J is twice the present age of K. Find the age of L before10 years, if the present age of L is twice the present age of J.

a. 92 years

b. 78 years

c. 67 years

d. 102 years

e. 82 years

20. Questions

The loss incurred by Guru by selling an article for Rs.(4x – 700) is the same as the profit gained by him while selling the same article for Rs.(6x + 300).If the selling price of the article when sold at a profit of 37.5% is Rs.6600, then find the selling price of the article when it is sold for Rs.(4x – 700).

a. Rs. 9300

b. Rs. 2800

c. Rs. 3300

d. Rs. 4200

e. Rs. 5100

21. Questions

The ratio of the distance covered by the boat in x hours in still water to the distance covered by the boat in downstream in (x – 6) hours is 4:3 and the time taken by the boat to cover 20x km in still water is 16 hours. If the speed of the current is 4 km/hr, then find the time taken by boat to cover 304 km in upstream.

    a. 19 hours

    b. 18 hours

    c. 16 hours

    d. 14 hours

    e. None of these

22. Questions

A alone can complete the work in x days and B alone can complete the same work in 5x/4 days and C alone can complete the work in 5x/6 days and all three can complete the work in 12 days. Find the time taken by B and C together to complete the work.

    a. 24 days

    b. 20 days

    c. 18 days

    d. 15 days

    e. None of these

23. Questions

The diagonals of the rhombus are 20 m and 18 m and the area of the rectangle is 15 m^2 more than twice the area of the rhombus. The ratio of the length to breadth of the rectangle is 5:3. Find the diagonal of the rectangle.

    a. $4\sqrt{37}$ m

    b. $5\sqrt{34}$ m

    c. $3\sqrt{47}$ m

    d. $7\sqrt{34}$ m

    e. $5\sqrt{33}$ m

24. Questions

A bullet train can cover x km in 4 hours. If the speed of the bullet train is increased by **18.18%**, then the bullet train can cover adistance of (x - 50) km in 3 hours. If the bullet train covers a distance of (x + 40) km in 240 minutes, then find the new speed of the bullet train.

a. 90 km/hr

b. 140 km/hr

c. 170 km/hr

d. 105 km/hr

e. 120 km/hr

25. Questions

The ratio of the income and savings of P to Q is 4:5 and 8:7 respectively, and the expenditure of Q is Rs. 9000 more than that of P. Find the difference between the savings of P and Q, if the sum of the expenditure of P and Q is Rs. 33000.

a. Rs. 2000

b. Rs. 4500

c. Rs. 5000

d. Rs. 1500

e. Rs. 3000

26. Questions

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

109.99% of 299 + 40.13% of 149.88 = ? * 2.88

a. 156

b. 130

c. 112

d. 188

e. 202

27. Questions

$\sqrt{(26.88 * 18.24 - 44.99)} + 3.99^2 = ?$

a. 37

b. 55

c. 43

d. 28

e. 18

28. Questions

34.99 * 2.99^2 + 13.12 * √224 = ? *2.88

   a. 127

   b. 153

   c. 217

   d. 170

   e. 187

29. Questions

47.77% of 249.76 + 27.33 * 3.99 = √? * 3.56 + 108.2

   a. 841

   b. 676

   c. 900

   d. 441

   e. 625

30. Questions

(224.99 ÷ 8.88 + 53.33) ÷ 6.22 = ? ÷ 3.07

   a. 51

   b. 26

   c. 33

   d. 44

   e. 39

31. Questions

What value should come in the place of (?) in the following number series?

37, 75, 152, 307, ? , 1241

   a. 341

   b. 484

   c. 921

   d. 618

e. 1078

32. Questions

1561, 1566, ? , 1596, 1636, 1716

    a. 1583

    b. 1576

    c. 1570

    d. 1579

    e. 1591

33. Questions

1084, ? , 545, 1093, 4376, 35013

    a. 676

    b. 1084

    c. 596

    d. 784

    e. 543

34. Questions

?, 23.4, 25.2, 27.9, 31.5, 36

    a. 23

    b. 22.5

    c. 18

    d. 18.5

    e. 20

35. Questions

24, 24, 12, 36, ?, 45

    a. 8

    b. 54

    c. 12

    d. 9

    e. 7

36. Questions

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

I). $2x^2 - 23x + 66 = 0$

II). $y^2 + 19y - 92 = 0$

    a. $x > y$

    b. $x \geq y$

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

    d. $x < y$

    e. $x \leq y$

37. Questions

I). $x^2 + 31x + 234 = 0$

II). $y^2 - 2y - 195 = 0$

    a. $x > y$

    b. $x \leq y$

    c. $x < y$

    d. $x \geq y$

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

38. Questions

I). $y = \sqrt{144}$

II). $x^2 + 17x - 84 = 0$

    a. $y < x$

    b. $y \leq x$

    c. $x \leq y$

    d. $y > x$

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

39. Questions

I). $x^2 + 31x + 240 = 0$

II). $y^2 + 35y + 304 = 0$

   a. x = y or relationship can't be determined

   b. x > y

   c. x < y

   d. x ≤ y

   e. x ≥ y

40. Questions

I). $x^2 - 2x - 63 = 0$

II). $y^2 + 38y + 192 = 0$

   a. x ≤ y

   b. y ≤ x

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

   d. y > x

   e. y < x

Explanations:

1. Questions

In company A,

The total number of employees working= 360

Number of male employees working= 160

Number of female employees working= 360 - 160 = 200

Similarly,

Company	Total number of employees working	Number of male employees working	Number of female employees working
A	360	160	200
B	320	200	120
C	440	280	160
D	400	80	320
E	520	240	280

Answer: D

Total number of employees working in Company B in 2011 = 320 * 150/100 = 480

Number of female employees working in Company B in 2011 = 480 * 3/8 = 180

Required percentage = 180/360 * 100 = 50%

2. Questions

In company A,

The total number of employees working= 360

Number of male employees working= 160

Number of female employees working= 360 - 160 = 200

Similarly,

Company	Total number of employees working	Number of male employees working	Number of female employees working
A	360	160	200
B	320	200	120
C	440	280	160
D	400	80	320
E	520	240	280

Answer: A

Ratio of the number of male to female employees working in the sales department in Company C = 160:100 =8:5

Let the number of male and female employees working in the sales department in Company C be 8x and 5x respectively.

Let the number of male and female employees working in the HR department in Company C be 2y and y respectively.

8x + 2y = 280 ---- (1)

5x + y = 160 ---- (2)

By solving equations (1) and (2), we get

x = 20 and y = 60

Number of male employees working in the sales department in Company C = 8x = 8 * 20 = 160

Number of female employees working in the sales department in Company C = 5x = 5 * 20 = 100

Total number of employees working in the sales department in Company C = 160 +100 = 260

3. Questions

In company A,

The total number of employees working= 360

Number of male employees working= 160

Number of female employees working= 360 - 160 = 200

Similarly,

Company	Total number of employees working	Number of male employees working	Number of female employees working
A	360	160	200
B	320	200	120
C	440	280	160
D	400	80	320
E	520	240	280

Answer: C

Total number of male employees working in Companies B and C together = 200 + 280 = 480

Required ratio = 480 : 320 = 480 : 320 = 3:2

4. Questions

In company A,

The total number of employees working= 360

Number of male employees working= 160

Number of female employees working= 360 - 160 = 200

Similarly,

Company	Total number of employees working	Number of male employees working	Number of female employees working
A	360	160	200
B	320	200	120
C	440	280	160
D	400	80	320
E	520	240	280

Answer: E

Number of male employees working in company F = 240 * (100 + x)/100 = 240 + 2.4x

Number of female employees working in Company F = 160 + 120 + 2x + 10 = 290 + 2x

400 * (100 + 2x + 10)/100 = 240 + 2.4x + 290 + 2x

4 * (110 + 2x) = 530 + 4.4x

$440 + 8x = 530 + 4.4x$

$3.6x = 90$

$x = 25$

5. Questions

In company A,

The total number of employees working= 360

Number of male employees working= 160

Number of female employees working= 360 - 160 = 200

Similarly,

Company	Total number of employees working	Number of male employees working	Number of female employees working
A	360	160	200
B	320	200	120
C	440	280	160
D	400	80	320
E	520	240	280

Answer: B

Number of male employees who did not get promotion in Company A = $160 - 5.5a - 12.5 = 147.5 - 5.5a$

Number of female employees who did not get promotion in Company A = $200 - 6.5a + 7.5 = 207.5 - 6.5a$

$(147.5 - 5.5a)/(207.5 - 6.5a) = 24/35$

$5162.5 - 192.5a = 4980 - 156a$

$36.5a = 182.5$

$a = 5$

Number of male employees who get promotion in Company A = $5.5 * 5 + 12.5 = 40$

Number of male employees who did not get promotion in Company A = 160 - 40 = 120

6. Questions

According to the question,

The total number of flowers sold in shop L = $35z + 42z + 24 + 54z + 8 = 131z + 32$

The total number of flowers sold in shop J = $20z + 38z + 16 + 10z = 68z + 16$

$131z + 32 - 68z - 16 = 520$

$63z + 16 = 520$

$63z = 504$

$z = 504/63$

$z = 8$

In shop I:

The number of roses sold $= 15z = 15 * 8 = 120$

The number of lotuses sold $= 22z + 4 = 22 * 8 + 4 = 176 + 4 = 180$

The number of lilies sold $= 30z = 30 * 8 = 240$

The total number of flowers sold $= 120 + 180 + 240 = 540$

In shop J:

The number of roses sold $= 20z = 20 * 8 = 160$

The number of lotuses sold $= 38z + 16 = 38 * 8 + 16 = 304 + 16 = 320$

The number of lilies sold $= 10z = 10 * 8 = 80$

The total number of flowers sold $= 160 + 320 + 80 = 560$

In shop K:

The number of roses sold $= 52.5z = 52.5 * 8 = 420$

The number of lotuses sold $= 12.5z = 12.5 * 8 = 100$

The number of lilies sold $= 25z = 25 * 8 = 200$

The total number of flowers sold $= 420 + 100 + 200 = 720$

In shop L:

The number of roses sold $= 35z = 35 * 8 = 280$

The number of lotuses sold $= 42z + 24 = 42 * 8 + 24 = 336 + 24 = 360$

The number of lilies sold $= 54z + 8 = 54 * 8 + 8 = 432 + 8 = 440$

The total number of flowers sold $= 280 + 360 + 440 = 1080$

Shops	The total number of flowers sold	The number of roses sold	The number of lotuses sold	The number of lilies sold
I	540	120	180	240
J	560	160	320	80
K	720	420	100	200
L	1080	280	360	440

Answer: C

The sum of the number of lotuses sold in shops I, K, and L together $= 180 + 100 + 360 = 640$

The sum of the number of lilies sold in shops I, J, and L together= 240 + 80 + 440 = 760

The required difference = 760 – 640 = 120

7. Questions

According to the question,

The total number of flowers sold in shop L = 35z + 42z + 24 + 54z + 8 = 131z + 32

The total number of flowers sold in shop J = 20z + 38z + 16 + 10z = 68z + 16

131z + 32 - 68z - 16 = 520

63z + 16 = 520

63z = 504

z = 504/63

z = 8

In shop I:

The number of roses sold = 15z = 15 * 8 = 120

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The number of lilies sold = 30z = 30 * 8 = 240

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The total number of flowers sold = 280 + 360 + 440 = 1080

Shops	The total number of flowers sold	The number of roses sold	The number of lotuses sold	The number of lilies sold
I	540	120	180	240
J	560	160	320	80
K	720	420	100	200
L	1080	280	360	440

Answer: E

The sum of the number of roses, lotuses, lilies and tulips sold in shop K=4 * (9b + 20) = 36b + 80

According to the question,

The number of tulips sold in shop K = 1080/3 – 100 = 360 – 100 = 260

420 + 100 + 200 + 260= 36b + 80

980 = 36b + 80

36b = 900

b = 25

8. Questions

According to the question,

The total number of flowers sold in shop L = 35z + 42z + 24 + 54z + 8 = 131z + 32

The total number of flowers sold in shop J = 20z + 38z + 16 + 10z = 68z + 16

131z + 32 - 68z - 16 = 520

63z + 16 = 520

63z = 504

z = 504/63

z = 8

In shop I:

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Shops	The total number of flowers sold	The number of roses sold	The number of lotuses sold	The number of lilies sold
I	540	120	180	240
J	560	160	320	80
K	720	420	100	200
L	1080	280	360	440

Answer: B

The total number of roses and lilies sold in shop L = 280 + 440 = 720

The total number of red roses and lilies sold together in shop L = 720 – 320 = 400

34y + 60 = 400

34y = 340

y = 10

The number of white roses sold in shop L = 12 * 10 = 120

The number of white lilies sold in shop L = 320 – 120 = 200

The number of red roses sold in shop L = 280 – 120 = 160

The number of red lilies sold in shop L = 440 – 200 = 240

Required ratio = 160:240 = 2:3

9. Questions

According to the question,

The total number of flowers sold in shop L = 35z + 42z + 24 + 54z + 8 = 131z + 32

The total number of flowers sold in shop J = 20z + 38z + 16 + 10z = 68z + 16

131z + 32 - 68z - 16 = 520

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The total number of flowers sold = 280 + 360 + 440 = 1080

Shops	The total number of flowers sold	The number of roses sold	The number of lotuses sold	The number of lilies sold
I	540	120	180	240
J	560	160	320	80
K	720	420	100	200
L	1080	280	360	440

Answer: D

The number of roses sold in shop M = 120 + 10 * 8 = 120 + 80 = 200

The number of lotuses sold in shop M = 100 * (100 + 2 * 8 + 4)/100 = 100 * (100 + 20)/100 = 100 * 120/100 = 120

The total number of flowers sold in shop M = 80 * z/1 = 80 * 8 = 640

The number of lilies sold in shop M = 640 – 200 – 120 = 320

10. Questions

According to the question,

The total number of flowers sold in shop L = 35z + 42z + 24 + 54z + 8 = 131z + 32

The total number of flowers sold in shop J = 20z + 38z + 16 + 10z = 68z + 16

131z + 32 - 68z - 16 = 520

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63z = 504

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The number of lilies sold = 10z = 10 * 8 = 80

The total number of flowers sold = 160 + 320 + 80 = 560

In shop K:

The number of roses sold = 52.5z = 52.5 * 8 = 420

The number of lotuses sold = 12.5z = 12.5 * 8 = 100

The number of lilies sold = 25z = 25 * 8 = 200

The total number of flowers sold = 420 + 100 + 200 = 720

In shop L:

The number of roses sold = 35z = 35 * 8 = 280

The number of lotuses sold = 42z + 24 = 42 * 8 + 24 = 336 + 24 = 360

The number of lilies sold = 54z + 8 = 54 * 8 + 8 = 432 + 8 = 440

The total number of flowers sold = 280 + 360 + 440 = 1080

Shops	The total number of flowers sold	The number of roses sold	The number of lotuses sold	The number of lilies sold
I	540	120	180	240
J	560	160	320	80
K	720	420	100	200
L	1080	280	360	440

Answer: D

Let the number of white lotuses sold in shop I be x.

And the number of white lotuses sold in shop J = 2x

Let the number of pink lotuses sold in shop I be 2y.

And the number of pink lotuses sold in shop J = 3y

x + 2y = 180 ---- (1)

2x + 3y = 320 ---- (2)

By solving equation (1) and (2),

x = 100, y = 40

The number of white lotuses sold in shop I = 100

The number of pink lotuses sold in shop J = 3 * 40 = 120

Required percentage = 120/100 * 100 = 120%

11. Questions

The number of people who like Samsung mobiles= 780

The number of people who like only Samsung mobiles= 320

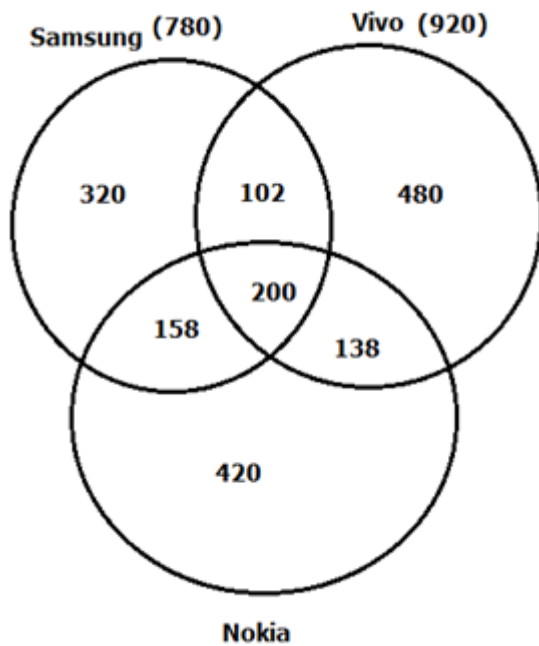The number of people who like only Vivo mobile= 320 * 3/2 = 480

The total number of people who like all three types of mobile phones = 62.5/100 * 320 = 5/8 * 320 = 200

The number of people who like both Samsung and Vivo mobiles but not Nokia mobiles= 102

The number of people who like only Nokia mobiles= 320 + 100 = 420

The number of people who like both Samsung and Nokia mobiles but not Vivo mobiles= 780 - (320 + 102 + 200) = 780 - 622 = 158

The number of people who like both Vivo and Nokia mobiles but not Samsung mobiles= 920 - (480 + 102 + 200) = 920 - 782 = 138

Answer: D

The required percentage = (158 - 138)/138 * 100 = 20/138 * 100 = 14.49≈14% more

12. Questions

The number of people who like Samsung mobiles= 780

The number of people who like only Samsung mobiles= 320

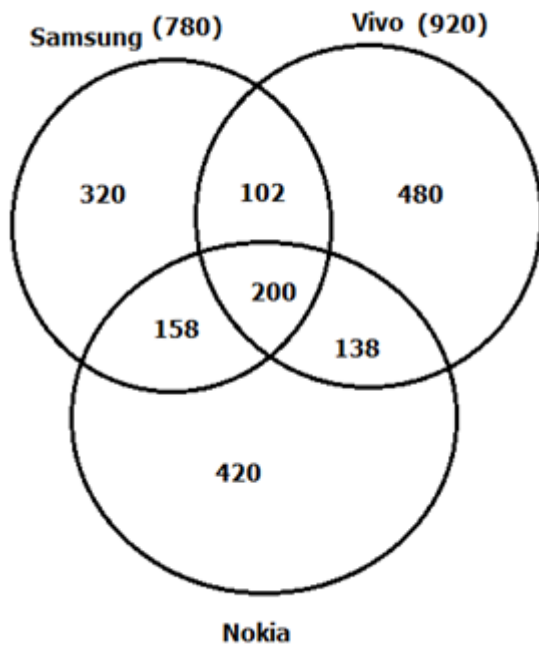The number of people who like only Vivo mobile= 320 * 3/2 = 480

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The number of people who like both Samsung and Nokia mobiles but not Vivo mobiles= 780 - (320 + 102 + 200) = 780 - 622 = 158

The number of people who like both Vivo and Nokia mobiles but not Samsung mobiles= 920 - (480 + 102 + 200) = 920 - 782 = 138

Answer: B

The number of people who like only Samsung mobiles in 2019= 112.5/100 * 480 = 9/8 * 480 = 540

The required sum = 540 + 320 = 860

13. Questions

The number of people who like Samsung mobiles= 780

The number of people who like only Samsung mobiles= 320

The number of people who like only Vivo mobile= 320 * 3/2 = 480

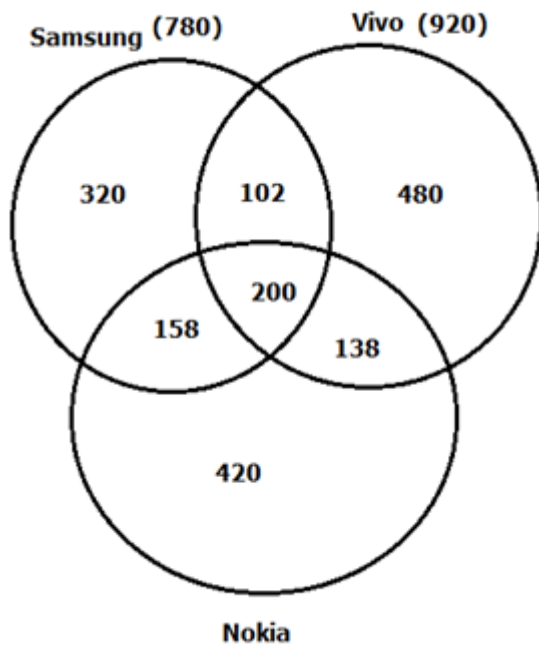The total number of people who like all three types of mobile phones = 62.5/100 * 320 = 5/8 * 320 = 200

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The number of people who like both Vivo and Nokia mobiles but not Samsung mobiles= 920 - (480 + 102 + 200) = 920 - 782 = 138

Answer: C

The number of people who don't like Vivo mobiles= 320 + 158 + 420 = 898

The number of people who like exactly two mobile phones = 102 + 158 + 138 = 398

The required difference = 898 - 398 = 500

14. Questions

The number of people who like Samsung mobiles= 780

The number of people who like only Samsung mobiles= 320

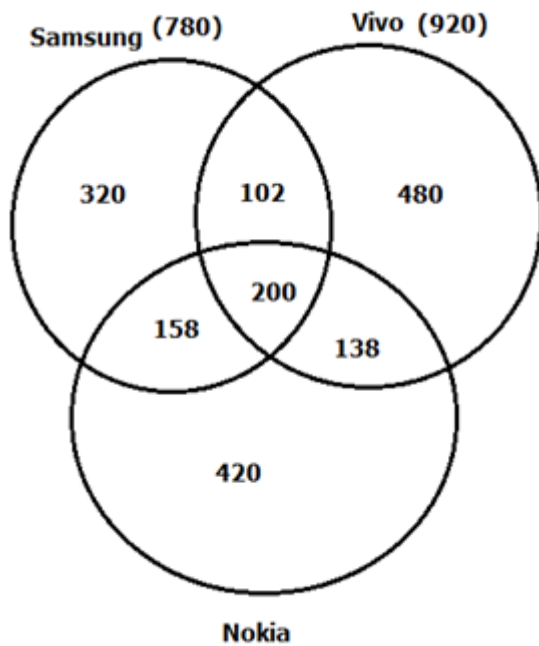The number of people who like only Vivo mobile= 320 * 3/2 = 480

The total number of people who like all three types of mobile phones = 62.5/100 * 320 = 5/8 * 320 = 200

The number of people who like both Samsung and Vivo mobiles but not Nokia mobiles= 102

The number of people who like only Nokia mobiles= 320 + 100 = 420

The number of people who like both Samsung and Nokia mobiles but not Vivo mobiles= 780 - (320 + 102 + 200) = 780 - 622 = 158

The number of people who like both Vivo and Nokia mobiles but not Samsung mobiles= 920 - (480 + 102 + 200) = 920 - 782 = 138

Answer: A

The number of males who like only Samsung mobiles = 3x

The number of males who like only Vivo mobiles = 5x

The number of females who like only Vivo mobiles = 200 + 80 = 280

5x + 280 = 480

x = 200/5 = 40

The number of males who like only Samsung mobiles = 3* 40 = 120

The number of females who like only Samsung mobiles = 320 - 120 = 200

Required difference = 200 – 120 = 80

15. Questions

The number of people who like Samsung mobiles= 780

The number of people who like only Samsung mobiles= 320

The number of people who like only Vivo mobile= 320 * 3/2 = 480

The total number of people who like all three types of mobile phones = 62.5/100 * 320 = 5/8 * 320 = 200

The number of people who like both Samsung and Vivo mobiles but not Nokia mobiles= 102

The number of people who like only Nokia mobiles= 320 + 100 = 420

The number of people who like both Samsung and Nokia mobiles but not Vivo mobiles= 780 - (320 + 102 + 200) = 780 - 622 = 158

The number of people who like both Vivo and Nokia mobiles but not Samsung mobiles= 920 - (480 + 102 + 200) = 920 - 782 = 138

Answer: E

The sum of the number of people who like exactly one mobile phone = 320 + 480 + 420 = 1220

16. Questions

Answer: B

The total number of balls in the bag = x + 6 + 10 = 16 + x

$(xC_2 + xC_1 * 16C_1)/[(16 + x)C_2] = 7/19$

$\{[x * (x - 1)/(2 * 1)] + (16 * x)\}/[(16 + x) * (15 + x)/(2 * 1)] = 7/19$

$[(x^2 - x) + 32x]/((240 + 16x + 15x + x^2) = 7/19$

$(x^2 + 31x)/(240 + 31x + x^2) = 7/19$

$19x^2 + 589x = 7x^2 + 217x + 1680$

$12x^2 + 372x - 1680 = 0$

$x^2 + 31x - 140 = 0$

$x^2 + 35x - 4x - 140 = 0$

$x(x + 35) - 4(x + 35) = 0$

x = +4, -35

x = 4

17. Questions

Answer: D

The profit share ratio of A and B = [(5.5a-200) * 7 + (5.5a-1600) * 5]: [(3a + 400) * 10 + (3a + 2500) * 2]

= (38.5a - 1400 + 27.5a - 8000): (30a + 4000 + 6a + 5000) = (66a - 9400): (36a + 9000)

According to the question,

$(66a - 9400)/(36a + 9000) = 31/27$

$(66a - 9400)/(9 * (4a + 1000)) = 31/27$

$(66a - 9400)/(4a + 1000) = 31/3$

$198a - 28200 = 124a + 31000$

$74a = 59200$

$a = 59200/74$

$a = 800$

The initial investment of A = 5.5a - 200 = 5.5 * 800 - 200 = 4400 - 200 = Rs. 4200

The initial investment of B = 3a + 400 = 3 * 800 + 400 = 2400 + 400 = Rs. 2800

The required difference = 4200 - 2800 = Rs. 1400

18. Questions

Answer: A

According to the question,

$6.5c + 10 + 4.5c - 10 = 220$

$11c = 220$

$c = 220/11$

$c = 20$

Initial quantity of milk in the mixture = 6.5 * 20 + 10 = 130 + 10 = 140 litres

Initial quantity of water in the mixture = 4.5 * 20 - 10 = 90 - 10 = 80 litres

Ratio of the initial quantity of milk to water in the mixture = 140:80 = 7:4

20% of the mixture is removed = 220 * 20/100 = 44 litres

$(140 – 44 * 7/11 + 4z + 6)/(80 – 44 * 4/11 + 3z + 12) = 3/2$

$(140 – 28 + 4z + 6)/(80 – 16 + 3z + 12) = 3/2$

$(118 + 4z)/(76 + 3z) = 3/2$

$236 + 8z = 228 + 9z$

$z = 8$

The quantity of milk added to the mixture = 4 * 8 + 6 = 32 + 6 = 38 litres

19. Questions

Answer: E

I + 3 = 200/100 * (J – 6)

I + 3 = 2J – 12

I = 2J – 15 ---- (1)

J = 2K ---- (2)

From equations (1) and (2),

I = 2 * (2K) – 15

I = 4K – 15 ---(3)

I + 11 = 22/5 * (K – 3)

5I + 55 = 22K – 66

22K – 5I = 121 ---(4)

From equations (3) and (4),

22K – 5 * (4K – 15) = 121

22K – 20K + 75 = 121

K = (121 - 75)/2 = 46/2 = 23

Present age of J = 23 * 2 = 46 years

Present age of L = 46 * 2 = 92 years

Age of L before 10 years = 92 – 10 = 82 years

20. Questions

Answer: C

The cost price of the article = 6600 * 100/(100 + 37.5) = 6600 * 8/11 = Rs. 4800

According to the question,

(6x + 300) - 4800 = 4800 - (4x - 700)

6x + 300 - 4800 = 4800 - 4x + 700

6x - 4500 = 5500 - 4x

10x = 10000

x = 1000

The required selling price = 4x - 700 = 4 * 1000 - 700 = 4000 - 700 = Rs. 3300

21. Questions

Answer: A

Let the speed of the boat in still water be B km/hr.

B = 20x/16 = 5x/4 km/hr

(5x/4 * x)/((5x/4 + 4) * (x − 6)) = 4/3

$(5x^2/4)/((5x + 16)/4 * (x − 6)) = 4/3$

$5x^2/(5x^2 − 30x + 16x − 96) = 4/3$

$15x^2 = 20x^2 − 56x − 384$

$5x^2 − 56x − 384 = 0$

$5x^2 − 80x + 24x − 384 = 0$

5x(x − 16) + 24(x − 16) = 0

x = +16, -24/5

Speed of the boat in still water = 5 * 16/4 = 20 km/hr

Upstream speed of the boat = 20 − 4 = 16 km/hr

Required time taken = 304/16 = 19 hours

22. Questions

Answer: C

1/A + 1/B + 1/C = 1/12

1/x + 4/5x + 6/5x = 1/12

(5 + 4 + 6)/5x = 1/12

15/5x = 1/12

x = 36 days

Time taken by B alone to complete the work = 5 * 36/4 = 45 days

Time taken by C alone to complete the work = 5 * 36/6 = 30 days

Required time taken = 1/B + 1/C = 1/45 + 1/30 = (2 + 3)/90 = 5/90 = 1/18 = 18 days

23. Questions

Answer: B

The area of the rhombus = 1/2 * 20 * 18 = 180 m^2

The area of the rectangle = 2 * 180 + 15 = 360 + 15 = 375 m^2

Let the length and breadth of the rectangle be 5x and 3x respectively.

5x * 3x = 375

$15 * x^2 = 375$

$x^2 = 25$

x = 5

The length of the rectangle, l = 5x = 5 * 5 = 25 m

The breadth of the rectangle, b = 3x = 3 * 5 = 15 m

The diagonal of the rectangle, d = $\sqrt{(l^2 + b^2)}$ = $\sqrt{(25^2 + 15^2)}$ = $\sqrt{(625 + 225)}$ = $\sqrt{850}$ = 5$\sqrt{34}$ m

24. Questions

Answer: E

Let the original speed of the bullet train be S km/hr.

The increased speed of the bullet train = 118.18/100 * S = 13S/11

(13S/11) * 3 + 50 = S * 4

13S * 3+ 550 = 44S

44S – 39S = 550

S = 110

x = 110 * 4 = 440 km

Required speed = (440 + 40)/(240/60)= 480/4 = 120 km/hr

25. Questions

Answer: A

The expenditure of P = (33000 – 9000)/2 = 24000/2 = Rs. 12000

The expenditure of Q= 33000 – 12000 = Rs. 21000

Let the income of P and Q be 4a and 5a respectively.

Let the savings of P and Q be 8b and 7b respectively.

4a – 8b = 12000 ----- (1)

5a – 7b = 21000 ---- (2)

By solving equations (1) and (2), we get

a = 7000 and b = 2000

The savings of P = 8b = 8 * 2000 = Rs. 16000

The savings of Q = 7b = 7 * 2000 = Rs. 14000

The required difference = 16000 – 14000 = Rs. 2000

26. Questions

Answer: B

109.99% of 299 + 40.13% of 149.88 = ? * 2.88

110/100 * 300 + 40/100 * 150 = ? * 3

$330 + 60 = ? * 3$

$? = 390/3$

$? = 130$

27. Questions

Answer: A

$\sqrt{(26.88 * 18.24 - 44.99)} + 3.99^2 = ?$

$\sqrt{(27 * 18 - 45)} + 4^2 = ?$

$? = \sqrt{(486 - 45)} + 4^2 = \sqrt{441} + 16$

$? = 21 + 16 = 37$

28. Questions

Answer: D

$34.99 * 2.99^2 + 13.12 * \sqrt{224} = ? * 2.88$

$35 * 9 + 13 * 15 = ? * 3$

$315 + 195 = ? * 3$

$? = 510/3 = 170$

29. Questions

Answer: C

47.77% of $249.76 + 27.33 * 3.99 = \sqrt{?} * 3.56 + 108.2$

$48/100 * 250 + 27 * 4 = \sqrt{?} * 4 + 108$

$120 + 108 - 108 = \sqrt{?} * 4$

$\sqrt{?} = 120/4 = 30$

$? = 900$

30. Questions

Answer: E

$(224.99 \div 8.88 + 53.33) \div 6.22 = ? \div 3.07$

$(225/9 + 53)/6 = ?/3$

$(25 + 53)/6 * 3 = ?$

$? = 78/2 = 39$

31. Questions

Answer: D

37*2+ 1 = 75

75*2+2 = 152

152*2+3 = 307

307*2+4 = **618**

618*2+5 = 1241

32. Questions

Answer: B

1561 + 5 = 1566

1566 + 10 = **1576**

1576 + 20 = 1596

1596 + 40 = 1636

1636 + 80 = 1716

33. Questions

Answer: E

1084 * 0.5 + 1 =**543**

543 * 1 + 2 = 545

545 * 2 + 3 = 1093

1093 * 4 + 4 = 4376

4376 * 8 + 5 = 35013

34. Questions

Answer: B

22.5 + 0.9 = 23.4

23.4 + 1.8 = 25.2

25.2 + 2.7 = 27.9

27.9 + 3.6 = 31.5

31.5 + 4.5 = 36

35. Questions

Answer: D

24 * 1 = 24

24 ÷ 2 = 12

12 * 3 = 36

$36 \div 4 = $ **9**

$9 * 5 = 45$

36. Questions

Answer: A

$2x^2 - 23x + 66 = 0$

$2x^2 - 12x - 11x + 66 = 0$

$2x(x - 6) - 11(x - 6) = 0$

$(x - 6)(2x - 11) = 0$

$x = + 6, + 11/2$

$x = + 6, + 5.5$

$y^2 + 19y - 92 = 0$

$y^2 + 23y - 4y - 92 = 0$

$y(y + 23) - 4(y + 23) = 0$

$(y + 23)(y - 4) = 0$

$y = - 23, + 4$

Hence, $x > y$

37. Questions

Answer: B

$x^2 + 31x + 234 = 0$

$x^2 + 18x + 13x + 234 = 0$

$x(x + 18) + 13(x + 18) = 0$

$(x + 18)(x + 13) = 0$

$x = - 18, - 13$

$y^2 - 2y - 195 = 0$

$y^2 - 15y + 13y - 195 = 0$

$y(y - 15) + 13(y - 15) = 0$

$(y - 15)(y + 13) = 0$

$y = + 15, - 13$

Hence, $x \leq y$

38. Questions

Answer: D

$y = \sqrt{144}$

$y = + 12$

$x^2 + 17x - 84 = 0$

$x^2 + 21x - 4x - 84 = 0$

$x(x + 21) - 4(x + 21) = 0$

$(x + 21)(x - 4) = 0$

$x = -21, +4$

Hence, $y > x$

39. Questions

Answer: E

$x^2 + 31x + 240 = 0$

$x^2 + 15x + 16x + 240 = 0$

$x(x + 15) + 16(x + 15) = 0$

$(x + 15)(x + 16) = 0$

$x = -15, -16$

$y^2 + 35y + 304 = 0$

$y^2 + 19y + 16y + 304 = 0$

$y(y + 19) + 16(y + 19) = 0$

$(y + 19)(y + 16) = 0$

$y = -19, -16$

Hence, $x \geq y$

40. Questions

Answer: C

$x^2 - 2x - 63 = 0$

$x^2 - 9x + 7x - 63 = 0$

$x(x - 9) + 7(x - 9) = 0$

$(x - 9)(x + 7) = 0$

x = +9, -7

$y^2 + 38y + 192 = 0$

$y^2 + 32y + 6y + 192 = 0$

$y(y + 32) + 6(y + 32) = 0$

$(y + 32)(y + 6) = 0$

y = - 32, -6

The relationship can't be determined.