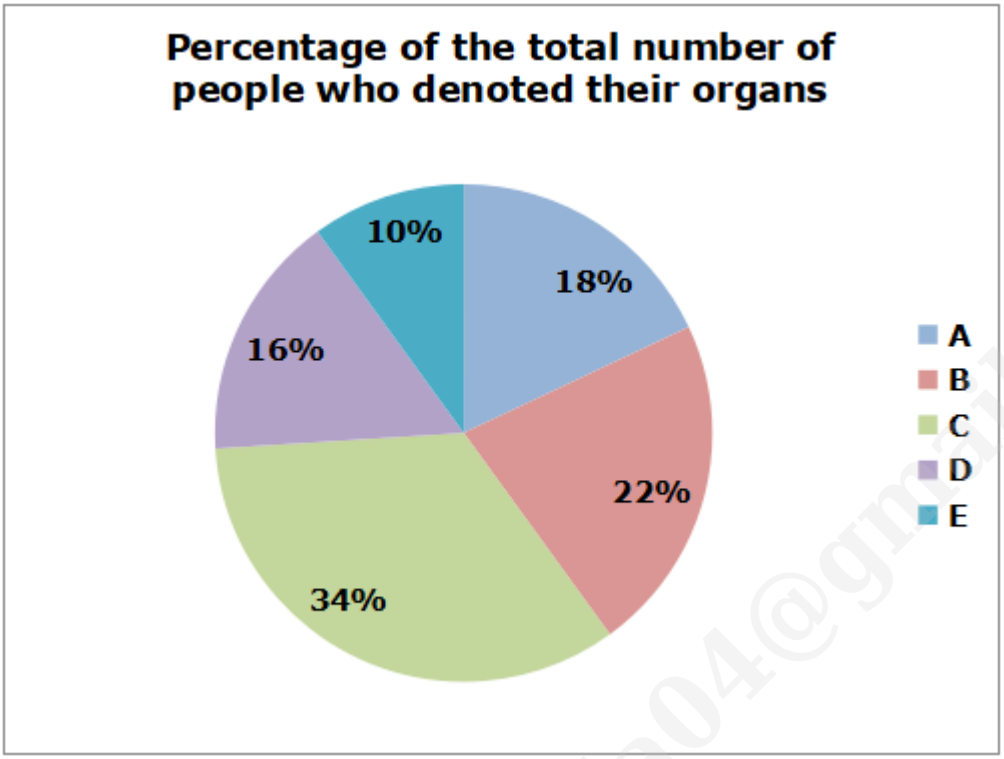
1. Questions

Study the following information carefully and answer the questions.

The given pie chart shows the percentage distribution of the total number of people who denoted their organs in five different hospitals namely A, B, C, D and E.



The given table chart shows the percentage of the number of males who donated their organs in five different hospitals namely A, B, C, D and E. The number of males who donated their organs in hospital C is 1224.

Hospitals	Percentage of the number of males who donated their organs
A	45%
B	35%
C	60%
D	40%
E	70%

Out of the total number of males who donated their organs in hospitals A and C, 66.66% and 25% donated to their family members respectively and the remaining donated to their friends. Find the difference between the number of males who donated their organs to their friends in hospitals A and C.

a. 254

b. 540

c. 756

d. 318

e. 296

2. Questions

If the total number of females who donated their organs in hospitals B and D together is (T + 234) and the ratio of the number of males who donated their organs in hospital B to hospital E is 11:S, then find the value of (T/S).

a. 180

b. 220

c. 150

d. 80

e. 120

3. Questions

Find the sum of the total number of people who donated their organs in hospitals C, D and A together.

a. 4080

b. 3477

c. 3890

d. 2890

e. 4180

4. Questions

The total number of people who donated their organs in hospital F is 15% more than that of hospital A and the ratio of the number of males who donated their organs in hospital B to hospital F is 11:9. Find the number of females who donated their organs in hospital F.

a. 864

b. 799

c. 650

d. 829

e. 490

5. Questions

The number of females who donated their organs in hospital A is what percentage less than the total number of people who donated their organs in hospital E?

a. 25%

b. 9%

c. 24%

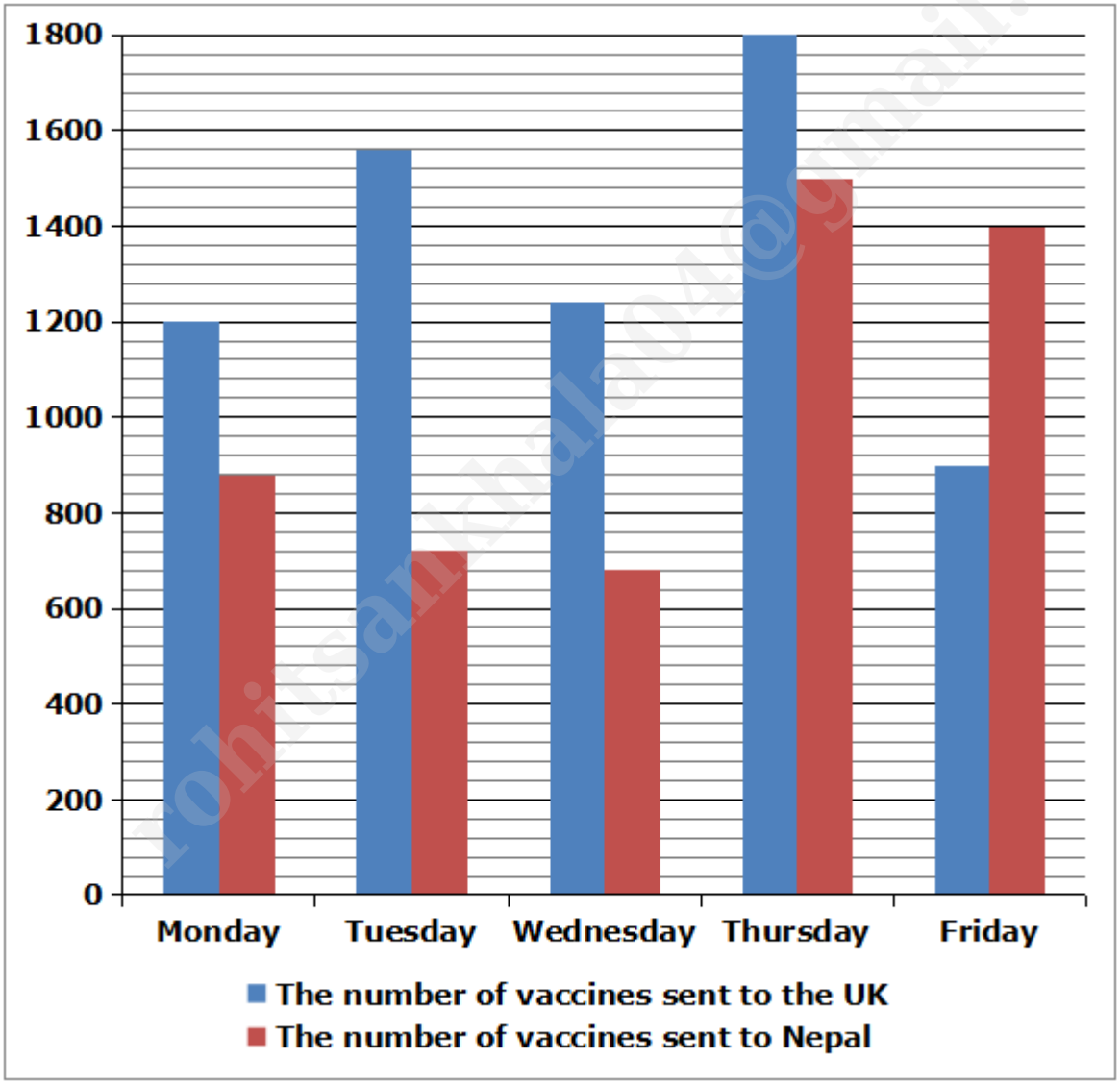
d. 16%

e. None of these

6. Questions

Study the following information carefully and answer the questions.

The given bar graph shows the number of vaccines sent to the UK on five different days namely Monday, Tuesday, Wednesday, Thursday and Friday and also given the number of vaccines sent to Nepal on these five days.



Out of the total number of vaccines sent to the UK and Nepal together on Monday,45% are sent by ships and the rest are sent by flights. If the ratio of the number of vaccines sent to the UK to Nepal by flights on Monday is 93:50, then find the number of vaccines sent to the UK by flights on Monday.

a. 644

b. 744

c. 422

d. 670

e. 650

7. Questions

The total number of vaccines sent to Nepal and the UK together on Saturday is (x + 2)% more than the number of vaccines sent to the UK on Thursday. If the number of vaccines sent to the UK and Nepal on Wednesday is 20 less and 220 less than that on Saturday respectively, then find the value of x.

a. 16

b. 21

c. 19

d. 18

e. 10

8. Questions

The number of vaccines sent to the US on Thursday is 16% less than the number of vaccines sent to Nepal on the same day and the number of vaccines sent to the US on Monday is 35% more than that on Thursday. Find the total number of vaccines sent to the US on Monday and Thursday together.

a. 2681

b. 2961

c. 2776

d. 1897

e. 3280

9. Questions

Out of the total number of vaccines sent to the UK on Sunday, 40% are sent by flights and the rest are sent by ships. If the ratio of the total number of vaccines sent to the UK on Wednesday to Sunday is 1:2, then find the number of vaccines sent to the UK by ships on Sunday.

a. 1680

b. 1287

c. 1488

d. 1560

e. 1109

10. Questions

The total number of vaccines sent to Nepal on Friday and Monday together is approximately what percentage of the number of vaccines sent to Nepal on Tuesday?

a. 366%

b. 198%

c. 290%

d. 317%

e. 255%

11. Questions

Read the following information carefully and answer the questions.

Amit bought two articles namely type A and type B for Rs. 800 and Rs. 1200 respectively. He sold the type A article at a profit of x%. He marked the type B article at 2x% above its cost price and sold it after allowing a discount of x%. In this process, he earned an overall profit of (x-4.8)%. Ajay bought a watch for Rs. 50x and marked it y% above its cost price. He sold it with a discount of Rs. 10x and made a profit of (x/2)%.

If the cost price of the table is Rs.22.5y and it is marked Rs.25 above its cost price and sold with a discount of Rs.80, then find the selling price of the table.

a. Rs. 620

b. Rs. 770

c. Rs. 810

d. Rs. 630

e. Rs. 930

12. Questions

Find the percentage profit made by Amit on the type A article.

a. 12%

b. 30%

c. 18%

d. 20%

e. 15%

13. Questions

If the selling price of the shoe is 22% more than the cost price of the watch and the shoe sold at a profit of 25%, then find the cost price of the shoe.

a. Rs. 886

b. Rs. 976

c. Rs. 1234

d. Rs. 765

e. Rs. 980

14. Questions

Find the difference between the cost price of the watch and the cost price of the type A article.

a. Rs. 180

b. Rs. 170

c. Rs. 200

d. Rs. 340

e. Rs. 280

15. Questions

Find the value of $(y^2 + x)$.

a. 918

b. 732

c. 816

d. 920

e. 855

16. Questions

A and B together can complete a piece of work in 64.5 days. B and C together can complete the same work in 86 days. If all three work together and can complete 75% of the work in 32.25 days, then find the time taken by A and C together to complete the work.

a. 51.6 days

b. 38.9 days

c. 65.5 days

d. 42.8 days

e. 53.4 days

17. Questions

A vessel contains a mixture of milk and water in the ratio of 5:7. If 30% of the mixture is taken out, then the quantity of mixture left in the vessel is 67.2 litres. If 60 litres of milk and 14 litres of water are added to the initial mixture, then find the ratio of milk to water in the resultant mixture.

a. 7:11

b. 9:7

c. 10:7

d. 11:13

e. 15:17

18. Questions

Arun running at a speed of 55 km/h covers a certain distance in x hours and he covers the same distance at a speed of 60 km/h in (x - 2) hours. If Mohan runs at a speed of (x + 6) km/hr, then find the time taken by Mohan to cover 360 km.

a. 14 hours

b. 8 hours

c. 12 hours

d. 21 hours

e. 18 hours

19. Questions

A person invested Rs.(x + 1200) in simple interest at 22% per annum for 4 years and obtained an interest of Rs.y. If he invested Rs.5y in compound interest at 20% per annum for one year and obtained a compound interest of Rs.2816, then find the value of x.

a. Rs.3200

b. Rs.2400

c. Rs.3500

d. Rs.2000

e. Rs.4000

20. Questions

The length of a rectangular field is 4 cm more than its breadth. The cost of plowing the field at Rs.6 per cm^2 is Rs.1920. If the perimeter of the square field is 25% less than that of the rectangular field, then find the side of the square field.

a. 16.8 cm

b. 20.4 cm

c. 13.5 cm

d. 31.2 cm

e. 27.6 cm

21. Questions

A and B entered into a partnership by investing Rs.2820 and Rs.3200 respectively. After one year, C joined with 80% of B's investment and A withdrew Rs.420. At the end of two years, the total profit of the business is Rs.141800. Find C's share of the profit.

a. Rs.25600

b. Rs.15678

c. Rs.21300

d. Rs.18600

e. Rs.32400

22. Questions

A shopkeeper marked an article 60% above its cost price and sold it after allowing two successive discounts of Rs.500 and 14% respectively. Had he purchased it for Rs.500 less and sold it for Rs. 78 more, he would have earn a profit of 60%. Find the initial cost price of the article.

a. Rs. 2200

b. Rs. 2000

c. Rs. 1850

d. Rs. 2190

e. Rs. 1750

23. Questions

A boat can cover a distance of 480 km each upstream and downstream in a total of 13 hours and 30 minutes. If the boat takes 60 minutes more to cover 480 km downstream than it does to cover 320 km upstream, then find the time taken by the boat to cover 640 km upstream.

a. 12 hours

b. 14 hours

c. 10 hours

d. 21 hours

e. 16 hours

24. Questions

In a school, the number of girls is 250 and the probability of selecting a boy is 8/13. Find the total number of students in the school.

a. 650

b. 620

c. 540

d. 580

e. 490

25. Questions

The average age of z persons in a group is (z -6) years. If the average age of two more persons whose ages are 50 years and 62 years respectively, is also included, the average age of the group is increased by 2 years. Find the value of z.

a. 30

b. 28

c. 32

d. 40

e. 25

26. Questions

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

54.97% of 800 + 32.89 * √17 – 22.14 = ? * 10.8

a. 47

b. 42

c. 35

d. 50

e. 55

27. Questions

$44.97 + 309.99 + 8.99 * 5.01 = ?^2$

a. 18

b. 23

c. 20

d. 14

e. 24

28. Questions

$\sqrt{441.01} + \sqrt{168.89} - 13.98^2 + 208 = ? * 2$

a. 28

b. 32

c. 25

d. 19

e. 23

29. Questions

42.3% of 600 + 12.9% of 4200 = ? * 3 + 21.2

a. 153

b. 270

c. 259

d. 323

e. 435

30. Questions

$8.9^2 + 11.01 + 24.98 * 2.01 = ?^2 + 41.79$

a. 16

b. 25

c. 20

d. 10

e. 30

31. Questions

Find out the wrong number in the following number series.

1088, 1257, 1061, 1287, 1030

a. 1061

b. 1088

c. 1287

d. 1257

e. 1030

32. Questions

23, 46, 73, 98, 127

a. 73

b. 46

c. 98

d. 127

e. 23

33. Questions

1156, 1165, 1180, 1210, 1252

a. 1210

b. 1252

c. 1180

d. 1165

e. 1156

34. Questions

567, 1134, 379, 1512, 302.4

a. 1134

b. 567

c. 379

d. 302.4

e. 1512

35. Questions

1329, 998, 727, 510, 343

a. 998

b. 727

c. 510

d. 343

e. 1329

36. 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 an answer as,

I). $x^2 - 18x + 45 = 0$

II). $2y^2 - 17y + 35 = 0$

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). $x^2 - 46x + 525 = 0$

II). $y^2 + 48y - 265 = 0$

a. $x > y$

b. $x \geq y$

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

d. $x < y$

e. $x \leq y$

38. Questions

I). $3x + 4y = 36$

II). $2x + 5y = 38$

a. $x > y$

b. $x \geq y$

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

d. $x \leq y$

e. $x < y$

39. Questions

I). $5x^2 + 26x - 24 = 0$

II). $y^2 + 43y + 330 = 0$

a. $x < y$

b. $x \geq y$

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

d. $x > y$

e. $x \leq y$

40. Questions

I). $x^2 + 19x + 84 = 0$

II). $y^2 - 2y - 63 = 0$

a. $x > y$

b. $x \geq y$

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

d. $x < y$

e. $x \leq y$

Explanations:

1. Questions

The number of males who donated their organs in hospital C = 1224

The total number of people who donated their organs in hospital C = 1224 * 100/60 = 2040

The total number of people who donated their organs in all five hospitals together = 2040 * 100/34 = 6000

The total number of people who donated their organs in hospital A = 6000 * 18/100 = 1080

The number of males who donated their organs in hospital A = 1080 * 45/100 = 486

The number of females who donated their organs in hospital A = 1080 – 486 = 594

Similarly, we can calculate other values.

Hospitals	The total number of people who donated their organs	The number of males who donated their organs	The number of females who donated their organs
A	1080	486	594
B	1320	462	858
C	2040	1224	816
D	960	384	576
E	600	420	180

Answer: C

The number of males who donated their organs to their friends in hospital A = 486 * (100 – 66.66)/100 = 486 * 1/3 = 162

The number of males who donated their organs to their friends in hospital C = 1224 * (100 – 25)/100 = 1224 * 3/4 = 918

Required difference = 918 – 162 = 756

2. Questions

The number of males who donated their organs in hospital C = 1224

The total number of people who donated their organs in hospital C = 1224 * 100/60 = 2040

The total number of people who donated their organs in all five hospitals together = 2040 * 100/34 = 6000

The total number of people who donated their organs in hospital A = 6000 * 18/100 = 1080

The number of males who donated their organs in hospital A = 1080 * 45/100 = 486

The number of females who donated their organs in hospital A = 1080 – 486 = 594

Similarly, we can calculate other values.

Hospitals	The total number of people who donated their organs	The number of males who donated their organs	The number of females who donated their organs
A	1080	486	594
B	1320	462	858
C	2040	1224	816
D	960	384	576
E	600	420	180

Answer: E

The total number of females who donated their organs in hospitals B and D together = 858 + 576 = 1434

1434 = T + 234

T = 1200

462/420 = 11/S

11/10 =11/S

S = 10

Required value = T/S = 1200/10 = 120

3. Questions

The number of males who donated their organs in hospital C = 1224

The total number of people who donated their organs in hospital C = 1224 * 100/60 = 2040

The total number of people who donated their organs in all five hospitals together = 2040 * 100/34 = 6000

The total number of people who donated their organs in hospital A = 6000 * 18/100 = 1080

The number of males who donated their organs in hospital A = 1080 * 45/100 = 486

The number of females who donated their organs in hospital A = 1080 – 486 = 594

Similarly, we can calculate other values.

Hospitals	The total number of people who donated their organs	The number of males who donated their organs	The number of females who donated their organs
A	1080	486	594
B	1320	462	858
C	2040	1224	816
D	960	384	576
E	600	420	180

Answer: A

The total number of people who donated their organs in hospitals C, D and A together= (1080 + 2040 + 960) = 4080

4. Questions

The number of males who donated their organs in hospital C = 1224

The total number of people who donated their organs in hospital C = 1224 * 100/60 = 2040

The total number of people who donated their organs in all five hospitals together = 2040 * 100/34 = 6000

The total number of people who donated their organs in hospital A = 6000 * 18/100 = 1080

The number of males who donated their organs in hospital A = 1080 * 45/100 = 486

The number of females who donated their organs in hospital A = 1080 – 486 = 594

Similarly, we can calculate other values.

Hospitals	The total number of people who donated their organs	The number of males who donated their organs	The number of females who donated their organs
A	1080	486	594
B	1320	462	858
C	2040	1224	816
D	960	384	576
E	600	420	180

Answer: A

The total number of people who donated their organs in hospital F = 1080 * 115/100 =1242

The number of males who donated their organs in hospital F= 462 * 9/11 = 378

The number of females who donated their organs in hospital F = 1242 – 378 = 864

5. Questions

The number of males who donated their organs in hospital C = 1224

The total number of people who donated their organs in hospital C = 1224 * 100/60 = 2040

The total number of people who donated their organs in all five hospitals together = 2040 * 100/34 = 6000

The total number of people who donated their organs in hospital A = 6000 * 18/100 = 1080

The number of males who donated their organs in hospital A = 1080 * 45/100 = 486

The number of females who donated their organs in hospital A = 1080 – 486 = 594

Similarly, we can calculate other values.

Hospitals	The total number of people who donated their organs	The number of males who donated their organs	The number of females who donated their organs
A	1080	486	594
B	1320	462	858
C	2040	1224	816
D	960	384	576
E	600	420	180

Answer: E

Required ratio = (594 – 600)/600 * 100 = 6/600 * 100 = 1%

6. Questions

Days	The total number of vaccines sent to the UK	The total number of vaccines sent to Nepal
Monday	1200	880
Tuesday	1560	720
Wednesday	1240	680
Thursday	1800	1500
Friday	900	1400

Answer: B

The total number of vaccines sent to the UK and Nepal together on Monday = (1200 + 880) = 2080

The total number of vaccines sent to the UK and Nepal together by flights on Monday = 2080 * 55/100 = 1144

The number of vaccines sent to the UK by flights on Monday = 1144 * 93/143 = 744

7. Questions

Days	The total number of vaccines sent to the UK	The total number of vaccines sent to Nepal
Monday	1200	880
Tuesday	1560	720
Wednesday	1240	680
Thursday	1800	1500
Friday	900	1400

Answer: D

The number of vaccines sent to the UK on Saturday = 1240 + 20 = 1260

The number of vaccines sent to Nepal on Saturday = 680 + 220 = 900

The total number of vaccines sent to Nepal and the UK together on Saturday = (1260 + 900) = 2160

2160 = 1800 * (x + 2 + 100)/100

2160 = 18 * (x + 102)

120 = x + 102

x = 18

8. Questions

Days	The total number of vaccines sent to the UK	The total number of vaccines sent to Nepal
Monday	1200	880
Tuesday	1560	720
Wednesday	1240	680
Thursday	1800	1500
Friday	900	1400

Answer: B

The number of vaccines sent to the US on Thursday = 1500 * (84/100) = 1260

The number of vaccines sent to the US on Monday = 1260 * (135/100) = 1701

Required sum = (1260 + 1701) = 2961

9. Questions

Days	The total number of vaccines sent to the UK	The total number of vaccines sent to Nepal
Monday	1200	880
Tuesday	1560	720
Wednesday	1240	680
Thursday	1800	1500
Friday	900	1400

Answer: C

The total number of vaccines sent to the UK on Sunday= 1240 * 2/1 = 2480

The number of vaccines sent to the UK by ships on Sunday= 2480 * 60/100 = 1488

10. Questions

Days	The total number of vaccines sent to the UK	The total number of vaccines sent to Nepal
Monday	1200	880
Tuesday	1560	720
Wednesday	1240	680
Thursday	1800	1500
Friday	900	1400

Answer: D

The number of vaccines sent to Nepal on Monday and Friday together = (1400 + 880) = 2280

Required % = (2280/720) * 100 = 316.77%≈ 317%

11. Questions

The sum of the cost price of the types A and B articles = 800 + 1200 = Rs.2000

800 * (100 + x)/100 + [1200 * (100 + 2x)/100 * (100 – x)/100] = 2000 * (100 + x – 4.8)/100

8 * (100 + x) + [12 * (100 + 2x) * (100 – x)/100] = 20 * (95.2 + x)

80000 + 800x + [(1200 + 24x) * (100 – x)] = 2000 * (95.2 + x)

$80000 + 800x + 120000 – 1200x + 2400x – 24x^2 = 190400 + 2000x$

$200000 + 2000x – 24x^2 = 190400 + 2000x$

$24x^2 = 9600$

$x^2 = 400 = 20^2$

x = 20

The selling price of the type A article = 800 * (100 + 20)/100 = Rs.960

The marked price of the type B article = 1200 * (100 + 2 * 20)/100 = Rs.1680

The selling price of the type B article = 1680 * (100 – 20)/100 = Rs.1344

The cost price of the watch = 20 * 50 = Rs. 1000

The selling price of the watch = 1000 * (100 + (20/2))/100 = 1000 * 110/100 = Rs.1100

1000 * (100 + y)/100 – 10 * 20 = 1100

10 * (100 + y) = 1300

100 + y = 130

y = 30

The marked price of the watch = 1000 * (100 + 30)/100 = Rs.1300

Answer: A

The cost price of the table = 22.5 * 30 = Rs. 675

The marked price of the table = 675 + 25 = Rs. 700

The selling price of the table = 700 – 80 = Rs.620

12. Questions

The sum of the cost price of the types A and B articles = 800 + 1200 = Rs.2000

800 * (100 + x)/100 + [1200 * (100 + 2x)/100 * (100 – x)/100] = 2000 * (100 + x – 4.8)/100

8 * (100 + x) + [12 * (100 + 2x) * (100 – x)/100] = 20 * (95.2 + x)

80000 + 800x + [(1200 + 24x) * (100 – x)] = 2000 * (95.2 + x)

$80000 + 800x + 120000 – 1200x + 2400x – 24x^2 = 190400 + 2000x$

$200000 + 2000x – 24x^2 = 190400 + 2000x$

$24x^2 = 9600$

$x^2 = 400 = 20^2$

x = 20

The selling price of the type A article = 800 * (100 + 20)/100 = Rs.960

The marked price of the type B article = 1200 * (100 + 2 * 20)/100 = Rs.1680

The selling price of the type B article = 1680 * (100 – 20)/100 = Rs.1344

The cost price of the watch = 20 * 50 = Rs. 1000

The selling price of the watch = 1000 * (100 + (20/2))/100 = 1000 * 110/100 = Rs.1100

1000 * (100 + y)/100 – 10 * 20 = 1100

10 * (100 + y) = 1300

100 + y = 130

y = 30

The marked price of the watch = 1000 * (100 + 30)/100 = Rs.1300

Answer: D

The profit earned by Amit on the type A article = x = 20%

13. Questions

The sum of the cost price of the types A and B articles = 800 + 1200 = Rs.2000

800 * (100 + x)/100 + [1200 * (100 + 2x)/100 * (100 – x)/100] = 2000 * (100 + x – 4.8)/100

8 * (100 + x) + [12 * (100 + 2x) * (100 – x)/100] = 20 * (95.2 + x)

$80000 + 800x + [(1200 + 24x) * (100 – x)] = 2000 * (95.2 + x)$

$80000 + 800x + 120000 – 1200x + 2400x – 24x^2 = 190400 + 2000x$

$200000 + 2000x – 24x^2 = 190400 + 2000x$

$24x^2 = 9600$

$x^2 = 400 = 20^2$

$x = 20$

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The selling price of the type B article = 1680 * (100 – 20)/100 = Rs.1344

The cost price of the watch = 20 * 50 = Rs. 1000

The selling price of the watch = 1000 * (100 + (20/2))/100 = 1000 * 110/100 = Rs.1100

1000 * (100 + y)/100 – 10 * 20 = 1100

10 * (100 + y) = 1300

100 + y = 130

y = 30

The marked price of the watch = 1000 * (100 + 30)/100 = Rs.1300

Answer: B

The selling price of the shoe = 1000 * 122/100 = Rs. 1220

The cost price of the shoe = 1220 * 100/125 = Rs. 976

14. Questions

The sum of the cost price of the types A and B articles = 800 + 1200 = Rs.2000

800 * (100 + x)/100 + [1200 * (100 + 2x)/100 * (100 – x)/100] = 2000 * (100 + x – 4.8)/100

8 * (100 + x) + [12 * (100 + 2x) * (100 – x)/100] = 20 * (95.2 + x)

80000 + 800x + [(1200 + 24x) * (100 – x)] = 2000 * (95.2 + x)

80000 + 800x + 120000 – 1200x + 2400x – 24x^2 = 190400 + 2000x

200000 + 2000x – 24x^2 = 190400 + 2000x

24x^2 = 9600

x^2 = 400 = 20^2

x = 20

The selling price of the type A article = 800 * (100 + 20)/100 = Rs.960

The marked price of the type B article = 1200 * (100 + 2 * 20)/100 = Rs.1680

The selling price of the type B article = 1680 * (100 – 20)/100 = Rs.1344

The cost price of the watch = 20 * 50 = Rs. 1000

The selling price of the watch = 1000 * (100 + (20/2))/100 = 1000 * 110/100 = Rs.1100

1000 * (100 + y)/100 – 10 * 20 = 1100

10 * (100 + y) = 1300

100 + y = 130

y = 30

The marked price of the watch = 1000 * (100 + 30)/100 = Rs.1300

Answer: C

The cost price of the watch = Rs. 1000

The cost price of the type A article = Rs. 800

Required difference = (1000 – 800) = Rs. 200

15. Questions

The sum of the cost price of the types A and B articles = 800 + 1200 = Rs.2000

800 * (100 + x)/100 + [1200 * (100 + 2x)/100 * (100 – x)/100] = 2000 * (100 + x – 4.8)/100

8 * (100 + x) + [12 * (100 + 2x) * (100 – x)/100] = 20 * (95.2 + x)

80000 + 800x + [(1200 + 24x) * (100 – x)] = 2000 * (95.2 + x)

$80000 + 800x + 120000 – 1200x + 2400x – 24x^2 = 190400 + 2000x$

$200000 + 2000x – 24x^2 = 190400 + 2000x$

$24x^2 = 9600$

$x^2 = 400 = 20^2$

x = 20

The selling price of the type A article = 800 * (100 + 20)/100 = Rs.960

The marked price of the type B article = 1200 * (100 + 2 * 20)/100 = Rs.1680

The selling price of the type B article = 1680 * (100 – 20)/100 = Rs.1344

The cost price of the watch = 20 * 50 = Rs. 1000

The selling price of the watch = 1000 * (100 + (20/2))/100 = 1000 * 110/100 = Rs.1100

1000 * (100 + y)/100 – 10 * 20 = 1100

10 * (100 + y) = 1300

100 + y = 130

y = 30

The marked price of the watch = 1000 * (100 + 30)/100 = Rs.1300

Answer: D

The value of y = 30, x = 20

Required value = 30^2 + 20 = 900 + 20 = 920

16. Questions

Answer: A

The time taken by A, B and C together to complete the whole work = 32.25 * (100/75) = 43 days

A alone complete the work = 1/43 – 1/86 = (2 – 1)/86 = 1/86 = 86 days

C alone complete the work = 1/43 – 1/64.5 = (3 – 2)/129 = 1/129 = 129 days

A and C together complete the work = 1/86 + 1/129 = (3 + 2)/258 = 1/51.6 = 51.6 days

17. Questions

Answer: C

Let the initial quantity of milk in the vessel = 5xlitres

The initial quantity of water in the vessel = 7xlitres

5x + 7x – [(5x + 7x) * 30/100] = 67.2

12x – 3.6x = 67.2

x = 67.2/8.4 = 8

The initial quantity of milk in the vessel = 5 * 8 = 40 litres

The initial quantity water in the vessel = 7 * 8 = 56 litres

The ratio of milk to water in the resultant mixture =(40 + 60): (56 + 14) = 100: 70 = 10:7

18. Questions

Answer: C

55 * x = 60 * (x – 2)

55x = 60x – 120

5x = 120

x = 24

The speed of Mohan = (24 + 6) = 30 km/hr

Time taken = 360/30 = 12 hours

19. Questions

Answer: D

The amount invested in CI = Rs.5y

$P(1 + R/100)^n - P = CI$

$5y * (1 + 20/100)^1 - 5y = 2816$

$5y * (120/100 - 1) = 2816$

$5y * (120 - 100) = 2816 * 100$

$y = 2816$

The amount invested in SI = (x + 1200)

$(x + 1200) * 22 * 4/100 = 2816$

$(x + 1200) = 3200$

$x = 2000$

20. Questions

Answer: C

Let the breadth of the rectangular field be x cm.

The length of the rectangular field = (x + 4) cm

The area of the rectangular field = $1920/6 = 320\ cm^2$

$x* (x + 4) = 320$

$x^2 + 4x - 320 = 0$

$x^2 + 20x - 16x - 320 = 0$

$x(x + 20) - 16(x + 20) = 0$

$(x + 20) (x -16) = 0$

x = -20, +16 (Consider only positive value)

x = 16

The breadth of the rectangular field= 16 cm

The length of the rectangular field = (16 + 4) = 20 cm

The perimeter of the rectangular field = (16 + 20) * 2 = 72 cm

The perimeter of the square field = 72 * 75/100= 54 cm

The side of the square field = 54/4 = 13.5 cm

21. Questions

Answer: A

The ratio of the profit share of A, B and C = (2820 * 1 + (2820 – 420) * 1) : (3200 * 2) : ((3200 * 80/100) * 1)

= (2820 + 2400) : (6400) : 2560

= 261:320:128

The profit share of C = 141800 * 128/709 = Rs. 25600

22. Questions

Answer: B

Let the initial cost price of the article be Rs.x.

The marked price of the article = x * (160/100) = 1.6x

The new cost price of the article = Rs.(x – 500)

(1.6x – 500) * 86/100 + 78 = (x – 500) * 160/100

1.376x – 430 + 78 = 1.6a - 800

0.224x = 448

x = 2000

23. Questions

Answer: C

Let the downstream speed of the boat = a km/hr

The upstream speed of the boat = b km/hr

480/a – 320/b = 1

480b – 320a = ab ---(1)

480/a +480/b = 13.5

480b + 480a = 13.5ab --(2)

By solving equation (1) and (2),

800a = 12.5ab

b = 800/12.5 = 64

a = 80

The upstream speed of the boat = 64 km/hr

Required time taken = 640/64 = 10 hours

24. Questions

Answer: A

Let the number of boys in the school be x.

The total number of students in the school = x + 250

xC1/(x + 250)C1 = 8/13

13x = 8x + 250 * 8

x = 250 * 8/5 = 400

The total number of students in the school = 400 + 250 = 650

25. Questions

Answer: A

(z – 6) * z + 50 + 62 = (z – 6 + 2) * (z + 2)

z^2 – 6z + 112 = (z – 4) * (z + 2)

z^2 – 6z + 112 = z^2 – 2z – 8

4z = 120

z = 30

26. Questions

Answer: D

54.97% of 800 + 32.89 * √17 – 22.14 = ? * 10.8

55/100 * 800 + 33 * 4 – 22 = ? * 11

440 + 132 – 22 = ? * 11

? = 550/11 = 50

27. Questions

Answer: C

44.97 + 309.99 + 8.99 * 5.01 = $?^2$

45 + 310 + 9 * 5 = $?^2$

45 + 310 + 45 = $?^2$

$?^2$ = 400= 20^2

? = 20

28. Questions

Answer: E

√441.01 + √168.89 – 13.98^2 + 208 = ? * 2

$\sqrt{441} + \sqrt{169} - 14^2 + 208 = ? * 2$

$21 + 13 - 196 + 208 = ? * 2$

$? = 46/2 = 23$

29. Questions

Answer: C

42.3% of 600 + 12.9% of 4200 = ? * 3 + 21.2

42/100 * 600 + 13/100 * 4200 = ? * 3 + 21

252 + 546 = ? * 3+ 21

798 – 21 = ? * 3

? =777/3 = 259

30. Questions

Answer: D

$8.9^2 + 11.01 + 24.98 * 2.01 = ?^2 + 41.79$

$9^2 + 11 + 25 * 2 = ?^2 + 42$

$81 + 11 + 50 = ?^2 + 42$

$142 = ?^2 + 42$

$100 = ?^2$

$? = 10$

31. Questions

Answer: C

$1088 + 13^2 = 1257$

$1257 - 14^2 = 1061$

$1061 + 15^2 = 1286$

$1286 - 16^2 = 1030$

32. Questions

Answer: A

23 + 23 = 46

46 + 25 = 71

71 + 27 = 98

98 + 29 = 127

33. Questions

Answer: D

1156 + (1 * 6) = 1162

1162 + (3 * 6) = 1180

1180 + (5 * 6) = 1210

1210 + (7 * 6) = 1252

34. Questions

Answer: C

567 * 2 = 1134

1134/3 = 378

378 * 4 = 1512

1512/5 = 302.4

35. Questions

Answer: D

$11^3 - 2 = 1329$

$10^3 - 2 = 998$

$9^3 - 2 = 727$

$8^3 - 2 = 510$

$7^3 - 2 = 341$

36. Questions

Answer: C

$x^2 - 18x + 45 = 0$

$x^2 - 15x - 3x + 45 = 0$

$x(x - 15) - 3(x - 15) = 0$

$(x - 15)(x - 3) = 0$

$x = +15, +3$

$2y^2 - 17y + 35 = 0$

$2y^2 - 10y - 7y + 35 = 0$

$2y(y - 5) - 7(y - 5) = 0$

$(y - 5)(2y - 7) = 0$

$y = +5, +3.5$

The relationship cannot be determined

37. Questions

Answer: A

$x^2 - 46x + 525 = 0$

$x^2 - 25x - 21x + 525 = 0$

$x(x - 25) - 21(x - 25) = 0$

$(x - 21)(x - 25) = 0$

$x = +21, +25$

$y^2 + 48y - 265 = 0$

$y^2 + 53y - 5y - 265 = 0$

$y(y + 53) - 5(y + 53) = 0$

$(y + 53)(y - 5) = 0$

$y = -53, +5$

Hence, $x > y$

38. Questions

Answer: E

$3x + 4y = 36$ ---(1)

$2x + 5y = 38$ --(2)

By solving equation (1) * -2 and (2) * 3,

$-6x - 8y = -72$

$6x + 15y = 114$

$7y = 42$

$y = 6$

$3x + 4 * 6 = 36$

$x = (36 - 24)/3 = 12/3 = 4$

Hence, $x < y$

39. Questions

Answer: D

$5x^2 + 26x – 24 = 0$

$5x^2 + 30x – 4x – 24 = 0$

$5x(x + 6) – 4(x + 6) = 0$

$(x + 6) (5x – 4) = 0$

$x = -6, +0.8$

$y^2 + 43y + 330 = 0$

$y^2 + 33y + 10y + 330 = 0$

$y(y + 33) + 10(y + 33)$

$(y + 33) (y+10) = 0$

$y = -33, -10$

Hence, $x > y$

40. Questions

Answer: E

$x^2 + 19x + 84 = 0$

$x^2 + 7x+ 12x + 84 = 0$

$x(x + 7) + 12(x + 7) = 0$

$(x + 7) (x + 12) = 0$

$x = -7, -12$

$y^2 -2y – 63 =0$

$y^2 + 7y – 9y -63 =0$

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

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

$y = -7, +9$

Hence, $x \leq y$