1. Questions

Study the following information carefully and answer the questions.

The given missing table chart shows the number of skilled workers, the ratio of the number of skilled to unskilled workers, the number of management staff, and the total number of employees working in four different companies, namely I, J, K, and L in 2020.

Note: The total number of employees working in each company = The number of skilled workers + The number of unskilled workers + The number of management staff.

Company name	The number of skilled workers	The ratio of the number of skilled to unskilled workers	The number of management staff	The total number of employees
I	----	----	60	230 more than the number of skilled workers
J	----	1:3	----	10 times the number of management staff
K	440	11:6	----	3 (1/8) of the number of unskilled workers
L	----	7:5	40	520
Total	1150	115: 88	----	2240

The total number of unskilled workers in companies I, K, and L together is approximately how much percentage more or less than the total number of management staff in all companies together?

a. 190% less
b. 180% more
c. 190% more
d. 185% less
e. 200% more

2. Questions

In company J, the number of skilled workers, unskilled workers, and management staff in 2021 increased by 20%, decreased by 22.22%, and decreased by 12.5%, respectively, compared to the previous year. Then find the total number of employees in Company J in 2021.

a. 375
b. 353

c. 370

d. 347

e. 360

3. Questions

In company L, the number of unskilled workers as freshers is 20% less than that of skilled workers, and the ratio of the number of skilled to unskilled workers as experienced is 3:2, Then find the difference between the total number of skilled and unskilled worker as freshers together in company L and total number of management staff in companies K and I together?

a. 80

b. 75

c. 45

d. 50

e. 60

4. Questions

Find the ratio between the average number of employees in all three categories together in company I and the average number of unskilled workers in companies J and K together.

a. 51:38

b. 37:47

c. 31:59

d. 38:53

e. 38:51

5. Questions

In company M, the number of skilled workers, the number of unskilled workers, and the number of management staff are (11.5z – 7.5), (7.5z – 7.5), and (3.5z + 2.5), respectively. Then find the total number of management staff and skilled workers in company M together.if the total number of employees in company M is 37.5% more than that of company J.

a. 370

b. 390

c. 365

d. 400

e. 380

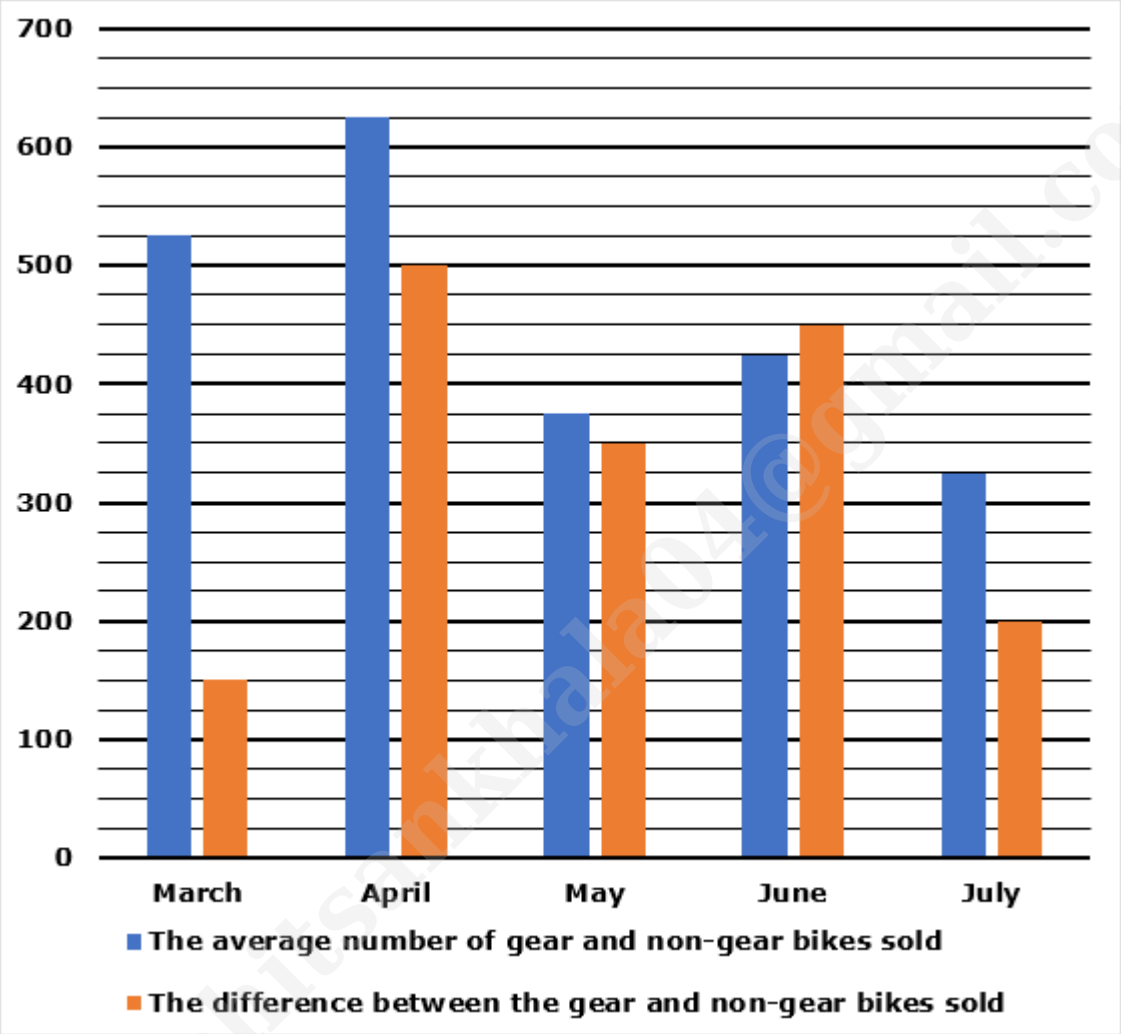
6. Questions

Study the following information carefully and answer the questions given below.

The bar graph shows the average number of gear bikes and non-gear bikes sold in five different months, i.e., March, April, May, June, and July, and also shows the difference between the number of gear bikes and non-gear bikes sold in these five months in 2013.

Note: The total number of two-wheelers sold in each month = The number of gear bikes sold + The number of non-gear bikes sold

In each month, the number of non-gear bikes sold is higher than that of gear bikes.



Find the total number of gear bikes sold in March, April, and July together is what fraction of the total number of non-gear bikes sold in May and June together.

a. 8/7

b. 7/8

c. 5/8

d. 3/8

e. 1/7

7. Questions

In March, if the number of warranty claims from customers for non-gear bikes is 66.66% of that of gear bikes and the ratio of the number of no warranty claims from customers for gear to non-gear bikes is 9:16, then find the total number of warranty claims from customers in March.

a. 300
b. 350
c. 270
d. 330
e. 260

8. Questions

If the number of gear and non-gear bikes sold in July 2013 was 25% more and 15% less, respectively to the previous year and the same month, then find the total number of two-wheelers sold in July 2012.

a. 700
b. 710
c. 650
d. 630
e. 680

9. Questions

The total number of non-gear bikes sold in March, May, and July together is how much more or less than the total number of gear bikes sold in April, May, and June together?

a. 800 less
b. 700 more
c. 850 less
d. 800 more
e. 1000 more

10. Questions

In August 2013, the number of gear and non-gear bikes sold was (22.5b + 85) and (42.5b – 45) respectively. Find the value of b if the total number of two-wheelers sold in August 2013 is 24% less than that of April 2013.

a. 10
b. 20
c. 14

d. 18

e. 22

11. Questions

Read the following information carefully and answer the questions.

There are three types of marathons: 2 km, 10 km, and 16 km, conducted by private institutions with people who participated from three different cities, namely P, Q, and R. The number of people who participated in the 2 km marathon from Q and R is 60 more and 50 less than the number of people who participated in the 2 km marathon from P. The number of people who participated in the 10 km marathon from P is 20 more than the number of people who participated in the 2 km marathon from Q. The number of people who participated in the 16 km marathon from R is 25% less than the number of people who participated in the 10 km marathon from P, and the ratio of the number of people who participated in the 10 km marathon from P to Q is 6:7, and the number of people who participated in the 10 km marathon from R is 55 more than that of Q. The number of people who participated in the 16 km marathon from P is 30% more than the number of people who participated in the 2 km marathon from R, and the number of people who participated in the 16 km marathon from Q is 70 more than that of P. The total number of people who participated in the 16 km marathon from all cities together is 737.

The total number of people who participated in the 2 km marathon from P, Q, and R together is approximately what percentage more or less than the total number of people who participated in the 10 km marathon from P and Q together?

a. 3% less

b. 3% more

c. 5% more

d. 8% less

e. 6% more

12. Questions

In city R, the number of males who participated in the 16 km marathon is 33.33% that of in the 10 km marathon, and the number of females who participated in the 10 km marathon is 20% more than that of in the 16 km marathon. Then, find the total number of females who participated in the 10 km and 16 km marathons together.

a. 330

b. 280

c. 300

d. 305

e. None of these

13. Questions

Find the ratio of the total number of people who participated in the 16 km marathon from Q and R together to the total number of people who participated in the 2 km marathon from P and Q together.

a. 125:129
b. 123:127
c. 125:131
d. 129:121
e. 129:125

14. Questions

If 3/13 of the people who participated in the 16 km marathon from P completed the marathon and 66.66% of the number of people who participated in the 16 km marathon from Q completed the marathon, then find the total number of people who did not complete the marathon from P and Q together.

a. 348
b. 355
c. 267
d. 394
e. None of these

15. Questions

Find the difference between the average number of people who participated in the 10 km marathon from all cities together and the average number of people who participated in the 16 km marathon from all cities together.

a. 98
b. 116
c. 132
d. 106
e. 124

16. Questions

Arun invests a sum of Rs. 8,000 in scheme A, offering compound interest at 20% per annum for 1.5 years compounded half-yearly. He further invests the interest obtained from scheme A and the additional amount of Rs. 1972 invested in scheme B, offering simple interest at 19% per annum for 15 years, then finds the total interest obtained by scheme A and B together.

a. Rs. 14850

b. Rs. 15815

c. Rs. 16500

d. Rs. 13750

e. Rs. 15300

17. Questions

Dharan and Jay entered into a business with an initial investment of Rs. 7,000 and Rs. 5,500, respectively. After 15 months, Dharan withdrew Rs. 2000, and Jay withdrew Rs. 1500,Vel entered into the business, investing Rs. 30x. At the end of 2 years, the profit share of Vel, out of the total profit of Rs. 1,03,000, is Rs.13,500.Then find Dharan's initial investment is how much more than that of Vel?

a. Rs. 3500 more

b. Rs. 2200 more

c. Rs. 2000 more

d. Rs. 2500 more

e. Rs. 2700 more

18. Questions

The mixture contains 637 liters of milk and water in a ratio of 4:3 respectively. If 25% and 33.33% of the quantity of milk and water is taken out and (7.5a + 28) liters of water and (21 – 3.5a) liters of milk are added into the remaining mixture, the final ratio of the quantity of milk to water in the final mixture is 7:6. Then find the quantity of water added to the mixture.

a. 64 liters

b. 58 liters

c. 54 liters

d. 51 liters

e. None of these

19. Questions

The age of the son 3 years hence will be 28.57% of the age of the father 6 years ago. The ratio of the father's age before 10 years and the son's age after 16 years is 5:3. If the average of the mother and father's ages after 5 years is 56, then find the present age of the mother.

a. 47 years

b. 45 years

c. 55 years

d. 58 years

e. 42 years

20. Questions

The income of I, J, and K is Rs. 2b – 500, Rs. 2.5b + 500, and Rs. 3b + 2500, respectively, and the income of K is Rs. 3500 more than that of income of J. The ratios of expenditure and savings for I to J are 5:6 and 3:5, respectively. Find the sum of the savings of I, J, and k together if the expenditure of k is 50% more than that of J.

a. Rs. 15000

b. Rs. 11000

c. Rs. 13000

d. Rs. 18000

e. Rs. 20000

21. Questions

In river A, the speed of a boat in still water is 38 km/hr to cover a certain distance in downstream is 12 hours, and the speed of a stream is (3.5z + 8) km/hr. Find the distance covered by the boat, if the downstream speed of the boat is 275% more than that of the upstream speed.

a. 680 km

b. 720 km

c. 760 km

d. 670 km

e. 800 km

22. Questions

M and N are the inlet pipes of the tank and O is the outlet pipe of the tank. M can fill the tank in x hours. When pipes M and O together can fill the tank in (1.5x + 9) hours and when pipes N and O together can fill the tank in (3x – 6) hours. Find the total time taken to fill the tank, if the ratio of the efficiency of pipe M to N and O is 8:3.

a. 14 (1/11) hours

b. 13 (5/11) hours

c. 15 (1/11) hours

d. 17 (1/13) hours

e. 13 (1/11) hours

23. Questions

A circle is inscribed in a square and the area of the circle is 5544 m^2 and the numerical value of the

area of the parallelogram is 16.66% that of the perimeter of the square. If the height of the parallelogram is 8 m, then find the breadth of the parallelogram.

a. 7 m

b. 12 m

c. 15 m

d. 8 m

e. 10 m

24. Questions

Train A crosses the tree in 16 seconds, and the same train passes the platform of length 339 m in 28 seconds. If the speed of Train B is 61.2 km/hr and the time taken by Train A and Train B to cross each other traveling in the same direction is 72 seconds, find the length of Train B.

a. 244 m

b. 320 m

c. 358 m

d. 211 m

e. 415 m

25. Questions

The 35% of the number A is equal to the 140% of the number B, and the number B is 63 less than that of A. If the average of the numbers A, B, C, and D is 92, then find the sum of the numbers C and D.

a. 270

b. 263

c. 254

d. 276

e. None of these

26. Questions

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

$(17 \div 153) * (?^2 \div 238) = ? \div 6$

a. 360

b. 347

c. 357

d. 363

e. 352

27. Questions

42.85% of 91 + 16.66% of 114 - 12 = ?

a. 50

b. 54

c. 43

d. 38

e. 46

28. Questions

(15/7) + (24/21) – (8/14)= ?

a. 2(4/7)

b. 3(5/7)

c. 2(5/9)

d. 2(5/7)

e. 4(5/7)

29. Questions

$(81)^4 \div (3)^{11} * (243)^2 = (9)^?$

a. 8.5

b. 10

c. 7.5

d. 5.5

e. 3.5

30. Questions

$(\sqrt{961} + 32 \div 8) - 45 = ? - (11)^2$

a. 222

b. 120

c. 102

d. 115

e. 111

31. Questions

Find out the wrong number in the following number series.

128, 64, 64, 96, 32, 120

a. 96

b. 128

c. 32

d. 120

e. 64

32. Questions

1146, 1152, 1160, 1146, 1168, 1136

a. 1152

b. 1146

c. 1168

d. 1160

e. 1136

33. Questions

310, 293, 274, 253, 222, 191

a. 222

b. 274

c. 310

d. 293

e. 253

34. Questions

53, 52, 54, 61, 75, 100

a. 100

b. 61

c. 75

d. 52

e. 54

35. Questions

15, 16, 52, 266, 1870, 16840

a. 52

b. 1870

c. 16840

d. 15

e. 16

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). $x^2 - 32x + 192 = 0$

II). $y^2 + 16y - 132 = 0$

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). $x^2 + 21x + 108 = 0$

II). $2y^2 - 15y - 38 = 0$

a. $x \leq y$

b. $x < y$

c. $x > y$

d. $x \geq y$

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

38. Questions

I). $2x^2 + 2x - 112 = 0$

II). $2y = (2744)^{1/3}$

a. $y \leq x$

b. $y < x$

c. $y > x$

d. $x \leq y$

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

39. Questions

I). $x^2 + 36x + 323 = 0$

II). $y^2 + 39y + 380 = 0$

a. $x \leq y$

b. $x > y$

c. $x < y$

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

e. $x \geq y$

40. Questions

I). $x^2 + 36x + 128 = 0$

II). $y^2 – y - 72 = 0$

a. $x \leq y$

b. $y \leq x$

c. $y < x$

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

e. $y > x$

Explanations:

1. Questions

In company L

The total number of skilled and unskilled workers = 520 – 40 = 480

The number of skilled workers = 480 * 7/12 = 280

The number of unskilled workers = 480 * 5/12 = 200

In company K

The number of unskilled workers = 440 * 6/11 = 240

According to the question,

The total number of employees = 25/8 * 240 = 750

The number of management staff = 750 – (440 + 240) = 750 – 680 = 70

In company J

The total number of management staff in all companies together = 2240 – (1150 + 880) = 2240 – 2030 = 210

The number of management staff = 210 – (40 + 70 + 60) = 210 – 170 = 40

The total number of employees = 10 * 40 = 400

The total number of skilled and unskilled workers = 400 - 40 = 360

The number of skilled workers = 360 * 1/4 = 90

The number of unskilled workers = 360 * 3/4 = 270

In company I

The total number of skilled workers = 1150 – (280 + 440 + 90) = 1150 – 810 = 340

The total number of employees = 230 + 340 = 570

The number of unskilled workers = 570 – (340 + 60) = 570 – 400 = 170

Company name	The number of skilled workers	The number of unskilled workers	The number of management staff	The total number of employees
I	340	170	60	570
J	90	270	40	400
K	440	240	70	750
L	280	200	40	520
Total	1150	880	210	2240

Answer: C

The total number of unskilled workers in companies I, K, and L together = 170 + 240 + 200 = 610

The total number of management staff in all companies together = 210

The required percentage = (610 – 210)/210 * 100 = 400/210 * 100 = 190.47 = 190% more

2. Questions

In company L

The total number of skilled and unskilled workers = 520 – 40 = 480

The number of skilled workers = 480 * 7/12 = 280

The number of unskilled workers = 480 * 5/12 = 200

In company K

The number of unskilled workers = 440 * 6/11 = 240

According to the question,

The total number of employees = 25/8 * 240 = 750

The number of management staff = 750 – (440 + 240) = 750 – 680 = 70

In company J

The total number of management staff in all companies together = 2240 – (1150 + 880) = 2240 – 2030 = 210

The number of management staff = 210 – (40 + 70 + 60) = 210 – 170 = 40

The total number of employees = 10 * 40 = 400

The total number of skilled and unskilled workers = 400 - 40 = 360

The number of skilled workers = 360 * 1/4 = 90

The number of unskilled workers = 360 * 3/4 = 270

In company I

The total number of skilled workers = 1150 – (280 + 440 + 90) = 1150 – 810 = 340

The total number of employees = 230 + 340 = 570

The number of unskilled workers = 570 – (340 + 60) = 570 – 400 = 170

Company name	The number of skilled workers	The number of unskilled workers	The number of management staff	The total number of employees
I	340	170	60	570
J	90	270	40	400
K	440	240	70	750
L	280	200	40	520
Total	1150	880	210	2240

Answer: B

The number of skilled workers in company J in 2021 = 90 * (120/100) = 108

The number of unskilled workers in company J in 2021 = 270 * (77.78/100) = 270 * (7/9) = 210

The number of management staff in company in 2021 = 40 * (87.5/100) = 40 * 7/8 = 35

The total number of employees in company J in 2021 = 108 + 210 + 35 = 353

3. Questions

In company L

The total number of skilled and unskilled workers = 520 – 40 = 480

The number of skilled workers = 480 * 7/12 = 280

The number of unskilled workers = 480 * 5/12 = 200

In company K

The number of unskilled workers = 440 * 6/11 = 240

According to the question,

The total number of employees = 25/8 * 240 = 750

The number of management staff = 750 – (440 + 240) = 750 – 680 = 70

In company J

The total number of management staff in all companies together = 2240 – (1150 + 880) = 2240 – 2030 = 210

The number of management staff = 210 – (40 + 70 + 60) = 210 – 170 = 40

The total number of employees = 10 * 40 = 400

The total number of skilled and unskilled workers = 400 - 40 = 360

The number of skilled workers = 360 * 1/4 = 90

The number of unskilled workers = 360 * 3/4 = 270

In company I

The total number of skilled workers = 1150 – (280 + 440 + 90) = 1150 – 810 = 340

The total number of employees = 230 + 340 = 570

The number of unskilled workers = 570 – (340 + 60) = 570 – 400 = 170

Company name	The number of skilled workers	The number of unskilled workers	The number of management staff	The total number of employees
I	340	170	60	570
J	90	270	40	400
K	440	240	70	750
L	280	200	40	520
Total	1150	880	210	2240

Answer: D

In company L:

The ratio of the number of unskilled to skilled workers as freshers in company L = 4:5

Let the number of skilled and unskilled workers as freshers be 5x and 4x respectively

Let the number of skilled and unskilled workers as experienced be 3y and 2y respectively

According to the question,

5x + 3y = 280 ---- (1)

4x + 2y = 200 ---- (2)

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

x = 20 and y = 60

The number of skilled workers as freshers = 5x = 5 * 20 = 100

The number of unskilled workers as freshers = 4x = 4 * 20 = 80

The number of skilled workers as experienced = 3y = 3 * 60 = 180

The number of unskilled workers as experienced = 2y = 2 * 60 = 120

The number of management staff in a company I and K = 60+70 = 130

Required difference = 180 – 130 = 50

4. Questions

In company L

The total number of skilled and unskilled workers = 520 – 40 = 480

The number of skilled workers = 480 * 7/12 = 280

The number of unskilled workers = 480 * 5/12 = 200

In company K

The number of unskilled workers = 440 * 6/11 = 240

According to the question,

The total number of employees = 25/8 * 240 = 750

The number of management staff = 750 – (440 + 240) = 750 – 680 = 70

In company J

The total number of management staff in all companies together = 2240 – (1150 + 880) = 2240 – 2030 = 210

The number of management staff = 210 – (40 + 70 + 60) = 210 – 170 = 40

The total number of employees = 10 * 40 = 400

The total number of skilled and unskilled workers = 400 - 40 = 360

The number of skilled workers = 360 * 1/4 = 90

The number of unskilled workers = 360 * 3/4 = 270

In company I

The total number of skilled workers = 1150 – (280 + 440 + 90) = 1150 – 810 = 340

The total number of employees = 230 + 340 = 570

The number of unskilled workers = 570 – (340 + 60) = 570 – 400 = 170

Company name	The number of skilled workers	The number of unskilled workers	The number of management staff	The total number of employees
I	340	170	60	570
J	90	270	40	400
K	440	240	70	750
L	280	200	40	520
Total	1150	880	210	2240

Answer: E

The average number of employees in all three categories together = (340 + 170 + 60)/3 = 570/3 = 190

The average number of unskilled workers in companies J and K together = (270 + 240)/2 = 510/2 = 255

The required ratio = 190:255 = 38:51

5. Questions

In company L

The total number of skilled and unskilled workers = 520 – 40 = 480

The number of skilled workers = 480 * 7/12 = 280

The number of unskilled workers = 480 * 5/12 = 200

In company K

The number of unskilled workers = 440 * 6/11 = 240

According to the question,

The total number of employees = 25/8 * 240 = 750

The number of management staff = 750 – (440 + 240) = 750 – 680 = 70

In company J

The total number of management staff in all companies together = 2240 – (1150 + 880) = 2240 – 2030 = 210

The number of management staff = 210 – (40 + 70 + 60) = 210 – 170 = 40

The total number of employees = 10 * 40 = 400

The total number of skilled and unskilled workers = 400 - 40 = 360

The number of skilled workers = 360 * 1/4 = 90

The number of unskilled workers = 360 * 3/4 = 270

In company I

The total number of skilled workers = 1150 – (280 + 440 + 90) = 1150 – 810 = 340

The total number of employees = 230 + 340 = 570

The number of unskilled workers = 570 – (340 + 60) = 570 – 400 = 170

Company name	The number of skilled workers	The number of unskilled workers	The number of management staff	The total number of employees
I	340	170	60	570
J	90	270	40	400
K	440	240	70	750
L	280	200	40	520
Total	1150	880	210	2240

Answer: A

The total number of employees in company M = 137.5/100 * 400 = 11/8 * 400 = 550

According to the question,

11.5z – 7.5 + 7.5z – 7.5 + 3.5z + 2.5 = 550

22.5z - 12.5 = 550

22.5z = 562.5

z = 562.5/22.5

z = 25

The number of management staff in company M

= 3.5z + 2.5 = 3.5 * 25 + 2.5 = 87.5 + 2.5 = 90

The number of skilled workers in company M

= 11.5z – 7.5 = 11.5 * 25 – 7.5 = 287.5 – 7.5 = 280

The required total = 90 + 280 = 370

6. Questions

Let the number of gear and non-gear bikes sold in each month be a and b respectively

According to the given bar graph,

The total number of two-wheelers sold in March, b + a = 525 * 2 = 1050

b + a = 1050 ---- (1)

b – a = 150 ---- (2)

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

b = 600 and a = 450

Similarly,

Month	The number of gear bikes	The number of non-gear bikes	The total number of two-wheelers sold
March	450	600	1050
April	375	875	1250
May	200	550	750
June	200	650	850
July	225	425	650

Answer: B

According to the question,

The total number of gear bikes sold in March, April, and July together = 450 + 375 + 225 = 1050

The total number of non-gear bikes sold in May and June together = 550 + 650 = 1200

The required fraction = 1050/1200 = 7/8

7. Questions

Let the number of gear and non-gear bikes sold in each month be a and b respectively

According to the given bar graph,

The total number of two-wheelers sold in March, b + a = 525 * 2 = 1050

b + a = 1050 ---- (1)

b – a = 150 ---- (2)

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

b = 600 and a = 450

Similarly,

Month	The number of gear bikes	The number of non-gear bikes	The total number of two-wheelers sold
March	450	600	1050
April	375	875	1250
May	200	550	750
June	200	650	850
July	225	425	650

Answer: A

The ratio of the number of Warranty claims from customers for non-gear to gear bikes = 2:3.

Let the number of Warranty claims from customers for gear bikes and non-gear bikes be 3x and 2x, respectively.

Let the number of no warranty claims from customers for gear bikes and non-gear bikes be 9y and 16y respectively.

3x + 9y = 450 ---- (1)

2x + 16y = 600 ---- (2)

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

x = 60 and y = 30

The number of Warranty claims from customers for gear bikes = 3x = 3 * 60 = 180

The number of Warranty claims from customers for non-gear bikes = 2x = 2 * 60 = 120

The required total warranty claims = 180 + 120 = 300

8. Questions

Let the number of gear and non-gear bikes sold in each month be a and b respectively

According to the given bar graph,

The total number of two-wheelers sold in March, b + a = 525 * 2 = 1050

b + a = 1050 ---- (1)

b – a = 150 ---- (2)

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

b = 600 and a = 450

Similarly,

Month	The number of gear bikes	The number of non-gear bikes	The total number of two-wheelers sold
March	450	600	1050
April	375	875	1250
May	200	550	750
June	200	650	850
July	225	425	650

Answer: E

According to the question,

The number of gear bikes sold in July 2012 = 225 * (100/125) = 180

The number of non-gear bikes sold in July 2012 = 425 * (100/85) = 500

The total number of two-wheelers sold in July 2012 = 180 + 500 = 680

9. Questions

Let the number of gear and non-gear bikes sold in each month be a and b respectively

According to the given bar graph,

The total number of two-wheelers sold in March, b + a = 525 * 2 = 1050

b + a = 1050 ---- (1)

b – a = 150 ---- (2)

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

b = 600 and a = 450

Similarly,

Month	The number of gear bikes	The number of non-gear bikes	The total number of two-wheelers sold
March	450	600	1050
April	375	875	1250
May	200	550	750
June	200	650	850
July	225	425	650

Answer: D

The total number of non-gear bikes sold in March, May, and July together = 600 + 550 + 425 = 1575

The total number of gear bikes sold in April, May, and June together = 375 + 200 + 200 = 775

The required difference = 1575 – 775 = 800 more

10. Questions

Let the number of gear and non-gear bikes sold in each month be a and b respectively

According to the given bar graph,

The total number of two-wheelers sold in March, b + a = 525 * 2 = 1050

b + a = 1050 ---- (1)

b – a = 150 ---- (2)

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

b = 600 and a = 450

Similarly,

Month	The number of gear bikes	The number of non-gear bikes	The total number of two-wheelers sold
March	450	600	1050
April	375	875	1250
May	200	550	750
June	200	650	850
July	225	425	650

Answer: C

The total number of two-wheelers sold in August 2013 = 76/100 * 1250 = 950

According to the question,

22.5b + 85 + 42.5b – 45 = 950

65b + 40 = 950

65b = 910

b = 910/65

b = 14

11. Questions

Let the number of people who participated in the 2 km marathon from P be x

The number of people who participated in the 2 km marathon from Q = x + 60

The number of people who participated in the 2 km marathon from R = x – 50

The number of people who participated in the 10 km marathon from P = x + 80

The number of people who participated in the 16 km marathon from R = 75/100 * (x + 80) = 3/4 * (x + 80) = 3x/4 + 60

The number of people who participated in the 10 km marathon from Q = 7/6 * (x + 80) = 7x/6 + 280/3 =

(7x + 560)/6

The number of people who participated in the 10 km marathon from R = ((7x + 560)/6) + 55

The number of people who participated in the 16 km marathon from P = 130/100 * (x – 50) = 13/10 * (x – 50) = 13x/10 - 65

The number of people who participated in the 16 km marathon from Q = (13x/10 – 65) + 70 = 13x/10 + 5

13x/10 – 65 + 13x/10 + 5 + 3x/4 + 60 = 737

26x/10 + 3x/4 = 737

(52x + 15x)/20 = 737

67x = 14740

x = 14740/67

x = 220

In 2 km marathon

The number of people who participated from P = x = 220

The number of people who participated from Q = x + 60 = 220 + 60 = 280

The number of people who participated from R = x – 50 = 220 – 50 = 170

In 10 km marathon

The number of people who participated from P = x + 80 = 220 + 80 = 300

The number of people who participated from Q = (7x + 560)/6 = (7 * 220 + 560)/6 = (1540 + 560)/6 = 2100/6 = 350

The number of people who participated from R = ((7x + 560)/6) + 55 = 350 + 55 = 405

In 16 km marathon

The number of people who participated from P = 13x/10 – 65 = 13 * 220/10 -65 = 286 – 65 = 221

The number of people who participated from Q = (13x/10 – 65) + 70 = 221 + 70 = 291

The number of people who participated from R = 3x/4 + 60 = 3 * 220/4 + 60 = 3 * 55 + 60 = 165 + 60 = 225

City name	The number of people in a 2 km marathon	The number of people in a 10 km marathon	The number of people in a 16 km marathon	The total number of people (all the marathons together)
P	220	300	221	741
Q	280	350	291	921
R	170	405	225	800

Answer: B

According to the question,

The total number of people who participated in the 2 km marathon from P, Q, and R together = 220 + 280 + 170 = 670

The total number of people who participated in the 10 km marathon from P and Q together = 300 + 350 = 650

The required percentage = (670 – 650)/650 * 100 = 20/650 * 100 = 3.076% ~3% more

12. Questions

Let the number of people who participated in the 2 km marathon from P be x

The number of people who participated in the 2 km marathon from Q = x + 60

The number of people who participated in the 2 km marathon from R = x – 50

The number of people who participated in the 10 km marathon from P = x + 80

The number of people who participated in the 16 km marathon from R = 75/100 * (x + 80) = 3/4 * (x + 80) = 3x/4 + 60

The number of people who participated in the 10 km marathon from Q = 7/6 * (x + 80) = 7x/6 + 280/3 = (7x + 560)/6

The number of people who participated in the 10 km marathon from R = ((7x + 560)/6) + 55

The number of people who participated in the 16 km marathon from P = 130/100 * (x – 50) = 13/10 * (x – 50) = 13x/10 - 65

The number of people who participated in the 16 km marathon from Q = (13x/10 – 65) + 70 = 13x/10 + 5

13x/10 – 65 + 13x/10 + 5 + 3x/4 + 60 = 737

26x/10 + 3x/4 = 737

(52x + 15x)/20 = 737

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x = 14740/67

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In 2 km marathon

The number of people who participated from P = x = 220

The number of people who participated from Q = x + 60 = 220 + 60 = 280

The number of people who participated from R = x – 50 = 220 – 50 = 170

In 10 km marathon

The number of people who participated from P = x + 80 = 220 + 80 = 300

The number of people who participated from Q = (7x + 560)/6 = (7 * 220 + 560)/6 = (1540 + 560)/6 = 2100/6 = 350

The number of people who participated from R = ((7x + 560)/6) + 55 = 350 + 55 = 405

In 16 km marathon

The number of people who participated from P = 13x/10 – 65 = 13 * 220/10 -65 = 286 – 65 = 221

The number of people who participated from Q = (13x/10 – 65) + 70 = 221 + 70 = 291

The number of people who participated from R = 3x/4 + 60 = 3 * 220/4 + 60 = 3 * 55 + 60 = 165 + 60 = 225

City name	The number of people in a 2 km marathon	The number of people in a 10 km marathon	The number of people in a 16 km marathon	The total number of people (all the marathons together)
P	220	300	221	741
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R	170	405	225	800

Answer: A

Let the number of males who participated in the 10 km marathon be a

The number of males who participated in the 16 km marathon = 33.33/100 * a = a/3

Let the number of females who participated in the 16 km marathon be b

The number of females who participated in the 10 km marathon = 120/100 * b = 6b/5

According to the question,

a + 6b/5 = 405

5a + 6b = 2025 ---- (1)

a/3 + b = 225

a + 3b = 675 ---- (2)

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

a = 225 and b = 150

The number of females who participated in the 16 km marathon = b = 150

The number of females who participated in the 10 km marathon = 6b/5 = 6 * 150/5 = 180

Required sum,= 150 + 180 = 330

13. Questions

Let the number of people who participated in the 2 km marathon from P be x

The number of people who participated in the 2 km marathon from Q = x + 60

The number of people who participated in the 2 km marathon from R = x – 50

The number of people who participated in the 10 km marathon from P = x + 80

The number of people who participated in the 16 km marathon from R = 75/100 * (x + 80) = 3/4 * (x + 80) = 3x/4 + 60

The number of people who participated in the 10 km marathon from Q = 7/6 * (x + 80) = 7x/6 + 280/3 = (7x + 560)/6

The number of people who participated in the 10 km marathon from R = ((7x + 560)/6) + 55

The number of people who participated in the 16 km marathon from P = 130/100 * (x – 50) = 13/10 * (x – 50) = 13x/10 - 65

The number of people who participated in the 16 km marathon from Q = (13x/10 – 65) + 70 = 13x/10 + 5

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In 2 km marathon

The number of people who participated from P = x = 220

The number of people who participated from Q = x + 60 = 220 + 60 = 280

The number of people who participated from R = x – 50 = 220 – 50 = 170

In 10 km marathon

The number of people who participated from P = x + 80 = 220 + 80 = 300

The number of people who participated from Q = (7x + 560)/6 = (7 * 220 + 560)/6 = (1540 + 560)/6 = 2100/6 = 350

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In 16 km marathon

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City name	The number of people in a 2 km marathon	The number of people in a 10 km marathon	The number of people in a 16 km marathon	The total number of people (all the marathons together)
P	220	300	221	741
Q	280	350	291	921
R	170	405	225	800

Answer: E

The total number of people who participated in the 16 km marathon from Q and R together = 291 + 225 = 516

The total number of people who participated in the 2 km marathon from P and Q together = 220 +280 = 500

The required ratio = 516: 500 = 129:125

14. Questions

Let the number of people who participated in the 2 km marathon from P be x

The number of people who participated in the 2 km marathon from Q = x + 60

The number of people who participated in the 2 km marathon from R = x – 50

The number of people who participated in the 10 km marathon from P = x + 80

The number of people who participated in the 16 km marathon from R = 75/100 * (x + 80) = 3/4 * (x + 80) = 3x/4 + 60

The number of people who participated in the 10 km marathon from Q = 7/6 * (x + 80) = 7x/6 + 280/3 = (7x + 560)/6

The number of people who participated in the 10 km marathon from R = ((7x + 560)/6) + 55

The number of people who participated in the 16 km marathon from P = 130/100 * (x – 50) = 13/10 * (x – 50) = 13x/10 - 65

The number of people who participated in the 16 km marathon from Q = (13x/10 – 65) + 70 = 13x/10 + 5

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The number of people who participated from P = x = 220

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The number of people who participated from R = x – 50 = 220 – 50 = 170

In 10 km marathon

The number of people who participated from P = x + 80 = 220 + 80 = 300

The number of people who participated from Q = (7x + 560)/6 = (7 * 220 + 560)/6 = (1540 + 560)/6 = 2100/6 = 350

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P	220	300	221	741
Q	280	350	291	921
R	170	405	225	800

Answer: C

The number of people who participated in the 16 km marathon from Q who completed the marathon = (100-66.66)/100 * 291 = 1/3 * 291 = 97

The number of people who participated in the 16 km marathon from P who did not complete the marathon = 221 * 10/13 = 170

The required sum = 97 + 170 = 267

15. Questions

Let the number of people who participated in the 2 km marathon from P be x

The number of people who participated in the 2 km marathon from Q = x + 60

The number of people who participated in the 2 km marathon from R = x – 50

The number of people who participated in the 10 km marathon from P = x + 80

The number of people who participated in the 16 km marathon from R = 75/100 * (x + 80) = 3/4 * (x + 80) = 3x/4 + 60

The number of people who participated in the 10 km marathon from Q = 7/6 * (x + 80) = 7x/6 + 280/3 = (7x + 560)/6

The number of people who participated in the 10 km marathon from R = ((7x + 560)/6) + 55

The number of people who participated in the 16 km marathon from P = 130/100 * (x – 50) = 13/10 * (x – 50) = 13x/10 - 65

The number of people who participated in the 16 km marathon from Q = (13x/10 – 65) + 70 = 13x/10 + 5

13x/10 – 65 + 13x/10 + 5 + 3x/4 + 60 = 737

26x/10 + 3x/4 = 737

(52x + 15x)/20 = 737

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The number of people who participated from P = x = 220

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In 10 km marathon

The number of people who participated from P = x + 80 = 220 + 80 = 300

The number of people who participated from Q = (7x + 560)/6 = (7 * 220 + 560)/6 = (1540 + 560)/6 = 2100/6 = 350

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In 16 km marathon

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City name	The number of people in a 2 km marathon	The number of people in a 10 km marathon	The number of people in a 16 km marathon	The total number of people (all the marathons together)
P	220	300	221	741
Q	280	350	291	921
R	170	405	225	800

Answer: D

The average number of people who participated in the 10 km marathon from all cities together = (300 + 350 + 405)/3 = 1055/3

The average number of people who participated in the 16 km marathon from all cities together = (221 + 291 + 225)/3 = 737/3

The required difference = 1055/3 – 737/3 = (1055 – 737)/3 = 318/3 = 106

16. Questions

Answer: B

Scheme A:

Let the principal, tenure, and interest rate be P, N, and R, respectively.

According to the question,

The compound interest in half-yearly, R = 20%/2 = 10%, N = 1.5 * 2 = 3 years

The compound interest = $8000 * ((1 + 10/100)^3 – 1)$

$= 8000 * ((11/10)^3 - 1) = 8000 * (1331/1000 – 1) = 8000 * 331/1000$ = Rs. 2648

Scheme B

The sum invested in scheme B = 2648 + 1972 = Rs. 4620

The simple interest, S.I = (4620 * 15 * 19)/100

S.I = 693 * 19

S.I = Rs. 13167

The total interest obtained by schemes A and B together = 2648 + 13167 = Rs. 15815

17. Questions

Answer: D

The profit ratio of Dharan to Jay to Vel

= ((7000 * 15 + 5000 * 9): (5500 * 15 + 4000 * 9): (30x * 9)

= (105000 + 45000): (82500 + 36000): (270x)

= 150000: 118500: 270x

Divide by 30, we get

The profit ratio of Dharan to Jay to Vel = 5000: 3950: 9x

The total profit share of Dharan and Jay = 103000 – 13500 =Rs. 89500

According to the question,

8950/9x = 89500/13500

x = (8950 * 13500)/ (9 * 89500)

x = 150

The Vel's initial investment = 30x = 30 * 150 = Rs. 4500

The required difference = 7000 – 4500 = Rs. 2500 more

18. Questions

Answer: B

The quantity of milk in the mixture = 637 * 4/7 = 364 liters

The quantity of water in the mixture = 637 * 3/7 = 273 liters

According to the question,

(364 – 364 * 25/100 + 21 – 3.5a)/ (273– 273 * 33.33/100 + 7.5a + 28) = 7/6

(364–91 + 21–3.5a)/ (273–91 + 7.5a + 28) = 7/6

(294 – 3.5a)/ (210 + 7.5a) = 7/6

1764 – 21a = 1470 + 52.5a

52.5a + 21a = 1764 - 1470

73.5a = 294

a = 294/73.5

a = 4

The quantity of water added to the mixture = 7.5a + 28 = 7.5 * 4 + 28

= 30 + 28 = 58 liters

19. Questions

Answer: A

Let the present age of the son and father be x and y respectively

x + 3 = (28.57/100) * (y – 6)

x + 3 = 2/7 * (y – 6)

7x + 21 = 2y – 12

7x – 2y = -33 ---- (1)

(y – 10)/ (x + 16) = 5/3

3y – 30 = 5x + 80

5x – 3y = - 110 ---- (2)

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

x = 11 and y = 55

The present age of son, x = 11 years

The present age of father, y = 55 years

Let the mother's present age be z

According to the question,

(z + 5 + y + 5)/2 = 56

(z + 55 + 10) = 112

z = 112 – 65

z = 47 years

20. Questions

Answer: A

According to the question,

(3b + 2500) – (2.5b + 500) = 3500

3b + 2500 – 2.5b – 500 = 3500

0.5b + 2000 = 3500

b = 1500/0.5

b = 3000

The income of I = 2b – 500 = 2 * 3000 – 500 = 6000 – 500 = Rs. 5500

The income of J = 2.5b + 500 = 2.5 * 3000 + 500 = 7500 + 500 = Rs. 8000

The income of K = 3b + 2500 = 3 * 3000 + 2500 = 9000 + 2500 = Rs. 11500

According to the question,

Let the expenditure of I and J be 5x and 6x respectively

Let the savings of I and J be 3y and 5y respectively

5500 = 5x + 3y ---- (1)

8000 = 6x + 5y ---- (2)

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

x = 500 and y = 1000

The expenditure of I = 5x = 5 * 500 = Rs. 2500

The expenditure of J = 6x = 6 * 500 = Rs. 3000

The savings of I = 3y = 3 * 1000 = Rs. 3000

The savings of J = 5y = 5 * 1000 = Rs. 5000

The expenditure of K = 150/100 * 3000 = Rs. 4500

The savings of K = 11500 – 4500 = 7000

The savings of I, J, and K together = 3000 + 5000 + 7000 = Rs. 15000

21. Questions

Answer: B

Let the downstream and upstream speeds be DS and US respectively

According to the question,

The downstream speed of the boat, DS = 375/100 * Upstream speed of the boat

38 + 3.5z + 8 = 375/100 * (38 – (3.5z + 8))

46 + 3.5z = 15/4 * (38 – 3.5z – 8)

46 + 3.5z = 15/4 * (30 – 3.5z)

184 + 14z = 450 – 52.5z

66.5z = 266

Z = 4

The water speed, WS = 3.5z + 8 = 3.5 * 4 + 8 = 14 + 8 = 22 km/hr

The downstream speed of the boat, DS = 38 + 22 = 60 km/hr

The upstream speed of the boat, US = 38 - 22 = 16 km/hr

Let the distance be D km

The downstream speed = distance /time

60 = D/12

D = 60 * 12

D = 720 km

22. Questions

Answer: E

The efficiency of the pipe is inversely proportional to the time taken by the pipe.

According to the question,

x/(3x -6) = 3/8

8x = 9x -18

x = 18

The pipe M can fill the tank = x = 18 hours

The pipes M and O together can fill the tank =(1.5x + 9) = 1.5 * 18 + 9

= 27 + 9 = 36 hours

The pipes N and O together can fill the tank = (3x – 6) = 3 * 18 - 6

= 54 – 6 = 48 hours

The total capacity of the water tank (LCM of 18, 36 and 48) = 144 units.

The efficiency of the pipes M and O = 144/36 = 4 units /hour

The efficiency of the pipe O = 8 – 4 = 4 units/hour

The efficiency of the pipe N = 3+4 = 7 units/hour

The net efficiency of pipes M, N, and O = 8 + 7 – 4 = 11

The required time taken = 144/11 = 13 (1/11) hours

23. Questions

Answer: A

According to the question,

The diameter of the circle (d) is equal to the side of the square (a).

$\pi r^2 = 5544$

$(22/7) * r^2 = 5544$

$r^2 = 5544 * 7/22$

$r^2 = 1764 = 42^2$

r = 42 m

The diameter of the circle, d = 2 * r = 2 * 42 = 84 m = a

The perimeter of the square, P = 4a = 4 * 84 = 336 m

The area of the parallelogram, A = 16.66/100 * 336

A = 1/6 * 336

The area of the parallelogram, A = b * h

The area of the parallelogram, A = 56 m^2

56 = b * 8

b = 7 m

The breadth of the parallelogram, b = 7 m

24. Questions

Answer: C

Let the length and speed of the Train A be L_A and S_A

$S_A = L_A/16$ ---- (1)

$S_A = (L_A + 339)/28$ ---- (2)

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

$L_A/16 = (L_A + 339)/28$

$L_A/4 = (L_A + 339)/7$

$7L_A = 4L_A + 1356$

$3L_A = 1356$

$L_A = 1356/3$

$L_A = 452$ m

The length of the train A, $L_A = 452$ m

The speed of the train A = 452/16 = 28.25

The speed of the train B = 61.2 * 5/18 = 17 m/s

Let the Length of Train B be L_B

$28.25 - 17 = (452 + L_B)/72$

$11.25 * 72 = 452 + L_B$

$L_B = 810 – 452 = 358$

Length of Train B, $L_B = 358$ m

25. Questions

Answer: B

According to the question,

35/100 * A = 140/100 * B

A = 4B

The ratio of A to B is 4: 1

The number A = 63 * 4/3 = 21 * 4 = 84

The number B = 63 * 1/3 = 21

The total sum of the numbers A, B, C, and D = 92 * 4 =368

The sum of the numbers C and D = 368 – 21 – 84 = 263

26. Questions

Answer: C

$(17 \div 153) * (?^2 \div 238) = ? \div 6$

$17/153 * ?^2/238 = ? \div 6$

$?^2/? = (153 * 238)/(17 * 6)$

? = 51 * 7

? = 357

27. Questions

Answer: E

42.85% of 91 + 16.66% of 114 - 12 = ?

42.85/100 * 91 + 16.66/100 * 114 - 12 = ?

3/7 * 91 + 1/6 * 114 – 12 = ?

39 + 19 – 12 = ?

? = 46

28. Questions

Answer: D

(15/7) + (24/21) – (8/14) = ?

(90 + 48 – 24)/42 = ?

? = (90 + 48 – 24)/42

? = 114/42

? = 19/7

? = 2(5/7)

29. Questions

Answer: C

$(81)^4 \div (3)^{11} * (243)^2 = (9)^?$

$(3^4)^4 \div (3)^{11} * (81 * 3)^2 = (3^2)^?$

$(3)^{16} \div (3)^{11} * (3^5)^2 = (3^2)^?$

$(3)^5 * (3)^{10} = (3)^{2 * ?}$

$(3)^{15} = (3)^{2 * ?}$

? * 2 = 15

? = 7.5

30. Questions

Answer: E

$(\sqrt{961} + 32 \div 8) - 45 = ? - (11)^2$

31 + 4 - 45 = ? - 121

35 - 45 = ? - 121

? = - 10 + 121

? = 111

31. Questions

Answer: C

128 * 0.5 = 64

64 ÷ 1 = 64

64 * 1.5 = 96

96 ÷ 2 =48

48 * 2.5 = 120

32. Questions

Answer: B

1156 1152 1160 1146 1168 1136

-4 +8 -14 +22 -32

4 6 8 10

33. Questions

Answer: E

310 - 17 = 293

293 - 19 = 274

274 - 23 =251

251 - 29 = 222

222 - 31 = 191

The difference between the numbers is a prime number.

34. Questions

Answer: A

$53 + 1^2 - 2 = 52$

$52 + 2^2 - 2 = 54$

$54 + 3^2 - 2 = 61$

$61 + 4^2 - 2 = 75$

$75 + 5^2 - 2 =$ **98**

35. Questions

Answer: D

14 * 1 + 2 = 16

16 * 3 + 4 = 52

52 * 5 + 6 = 266

266 * 7 + 8 = 1870

1870 * 9 + 10 = 16840

36. Questions

Answer: A

x^2 - 32x + 192 = 0

x^2 - 24x - 8x + 192 = 0

x(x - 24) - 8(x - 24) = 0

(x - 24) (x - 8) = 0

x = + 24, + 8

y^2 + 16y - 132 = 0

y^2 + 22y - 6y - 132 = 0

y(y + 22) - 6(y + 22) = 0

(y + 22) (y - 6) = 0

y = - 22, + 6

Hence, x > y

37. Questions

Answer: B

x^2 + 21x + 108 = 0

x^2 + 12x + 9x + 108 = 0

x(x + 12) + 9(x + 12) = 0

(x + 12) (x + 9) = 0

x = - 12, - 9

$2y^2$ - 15y - 38 = 0

$2y^2$ + 4y - 19y - 38 = 0

$2y(y + 2) - 19(y + 2) = 0$

$(y + 2)(2y - 19) = 0$

$y = -2, +19/2$

$y = -2, +9.5$

Hence, $x < y$

38. Questions

Answer: D

$2x^2 + 2x - 112 = 0$

$2x^2 + 16x - 14x - 112 = 0$

$2x(x + 8) - 14(x + 8) = 0$

$(x + 8)(2x - 14) = 0$

$x = -8, +14/2$

$x = -8, +7$

$2y = (2744)^{1/3}$

$2y = 14$

$y = 14/2$

$y = 7$

Hence, $x \leq y$

39. Questions

Answer: E

$x^2 + 36x + 323 = 0$

$x^2 + 19x + 17x + 323 = 0$

$x(x + 19) + 17(x + 19) = 0$

$(x + 19)(x + 17) = 0$

$x = -19, -17$

$y^2 + 39y + 380 = 0$

$y^2 + 19y + 20y + 380 = 0$

$y(y + 19) + 20(y + 19) = 0$

$(y + 19)(y + 20) = 0$

y = - 19, - 20

Hence, x ≥ y

40. Questions

Answer: D

$x^2 + 36x + 128 = 0$

$x^2 + 32x + 4x + 128 = 0$

$x(x + 32) + 4(x + 32) = 0$

$(x + 32)(x + 4) = 0$

$x = - 32, - 4$

$y^2 – y - 72 = 0$

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

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

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

$y = + 9, - 8$

Hence, x = y, or the relationship can't be determined.