



Date : 28th Dec 2023

Quantitative Aptitude – Algebra

English

Q:1 Two numbers are such that if we divide 2nd number by twice of the 1st number then we get a number which is 5 more than 1st. Also the difference of 2nd number and 400% of 1st number is 56. Find the ratio of 1st number to 2nd number. (both numbers are positive)

1. 2 : 13
2. 6 : 11
3. 17 : 5
4. 9 : 11
5. 1 : 18

Q:2 In a parking area there are total $(x^2 - 4)$ two wheelers and 'x + 5' four wheelers. If the total number of wheels in the parking area is $3(x^2 + 4)$, then what is the total number of vehicles (two wheelers + four wheelers) in the parking area?

1. 18
2. 21
3. 15
4. 24
5. None of these

Q:3 The total price of 5 chairs and 6 tables is Rs. 6150 and that of 3 chairs and 7 tables is Rs. 5900. What is the difference between the price of 1 table and 1 chair?

1. Rs. 200
2. Rs. 190
3. Rs. 180
4. Rs. 250
5. Rs. 300

Q:4 Sum of the ages of Rishabh, Tanvi, Paras and Vanya is 43. Paras is 7 years older than Rishabh and Tanvi is 4 years younger than Vanya. Also, the sum of ages of Tanvi and Vanya is 7 times the age of Rishabh. Find the age of Vanya.

1. 18 years
2. 20 years
3. 16 years
4. 12 years
5. 15 years

Q:5 In a mobile shop, the total cost of 11 chargers and 12 tempered glasses is Rs 1490 and the total cost of 5 chargers and 18 tempered glasses is Rs 1430. Find the sum of the cost of 1 charger and 1 tempered glass.

1. Rs. 130
2. Rs. 120
3. Rs. 140
4. Rs. 150
5. Rs. 110

Q:6 Price of a pizza and a burger in a hotel is $(14x + 13)$ and $10(x - 2)$ respectively. If total cost of 2 pizzas and 3 burgers is $(6x^2 + 46)$, then what is the value of 'x'?

1. 6
2. 5
3. 7
4. 9
5. 8

Q:7 A cricket match is organized in a stadium where the tickets are of 4 different categories: Gallery, Balcony, VIP and VVIP. The average price of tickets of 4 categories is Rs. 850. The average price of tickets of gallery and VVIP categories is Rs. 925 which is Rs. 25 less than the price of VIP category tickets. Find the price of the Balcony ticket.

1. Rs. 700
2. Rs. 500
3. Rs. 600
4. Rs. 550
5. Rs. 650

Q:8 Sum of prices of 3 liters petrol and 4 liters diesel was Rs. 500 in May. Next month, price of petrol increases by Rs. 10/liter and the price of diesel decreases by Rs. 5/liter then sum of prices of 4 liters petrol and 3 liters diesel is Rs. 540. What was the per liter price of petrol in May?

1. Rs. 75
2. Rs. 80
3. Rs. 70
4. Rs. 85
5. Rs. 90

Q:9 In a parking, 480 bikes are arranged in certain number of rows and columns. After the rearrangement of the bikes, only 93.75% bikes can be arranged. As the result of this rearrangement, total number of rows is reduced by 5 and total columns is increased by 2. Find the total number of rows after the rearrangement.



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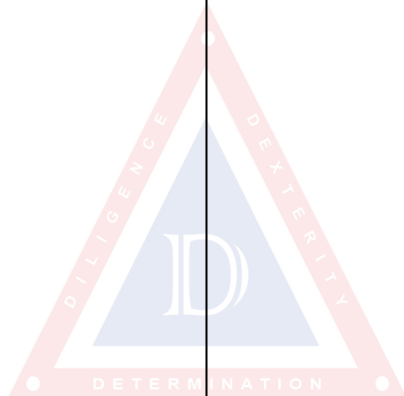
Quantitative Aptitude - Algebra

English

1. 30
2. 20
3. 35
4. 25
5. 40

Q:10 If the relations between 2 numbers 'x' and 'y' are $(x/5) + (y/9) = -19/45$ and $x + 4y = 22$, then find the value of $(x + 3y)/(6y + x/3)$.

1. $1/2$
2. $5/8$
3. $2/3$
4. $3/8$
5. $4/7$



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Answer Key

1. (5)	2. (2)	3. (1)	4. (3)	5. (1)
6. (5)	7. (3)	8. (2)	9. (4)	10. (4)

Answers and Solutions

Q:1 The correct answer is **option 5** i.e. 1 : 18

Let the first number be x and second number be y , then according to first condition given,

$$\Rightarrow y/2x = x + 5$$

$$\Rightarrow y = 2x^2 + 10x$$

Now according to second condition given,

$$\Rightarrow y - 400\% \text{ of } x = 56$$

$$\Rightarrow y - 4x = 56$$

Putting value of y from first condition in second condition,

$$\Rightarrow 2x^2 + 10x - 4x = 56$$

$$\Rightarrow 2x^2 + 6x - 56 = 0$$

$$\Rightarrow x^2 + 3x - 28 = 0$$

$$\Rightarrow (x + 7)(x - 4) = 0$$

$$\Rightarrow x = -7, 4$$

As both numbers are positive

$$\Rightarrow x = 4$$

Now, by second condition

$$\Rightarrow y - 4 \times 4 = 56$$

$$\Rightarrow y = 72$$

$$\text{Required ratio} = 4 : 72 = 1 : 18$$

Q:2 The correct answer is **Option 2** i.e. 21

Total wheels of two wheelers in the parking area = $2(x^2 - 4)$

Total wheels of four wheelers in the parking area = $4(x + 5)$

According to the question:

$$2(x^2 - 4) + 4(x + 5) = 3(x^2 + 4)$$

$$2x^2 - 8 + 4x + 20 = 3x^2 + 12$$

$$x^2 = 4x$$

$$x = 4$$

Hence, total numbers of vehicles in the parking area = $(x^2 - 4) + (x + 5) = 12 + 9 = 21$

Q:3 The correct answer is **Option 1** i.e. Rs. 200

Suppose the prices of 1 table and 1 chair are ' x ' and ' y ' respectively.

$$\text{So, } 5y + 6x = 6150 \dots\dots\dots (1)$$

$$\text{And } 3y + 7x = 5900 \dots\dots\dots (2)$$

Solving the equations:

$$x = 650 \text{ and } y = 450$$

$$\text{Hence, difference} = 650 - 450 = \text{Rs. } 200$$

Q:4 The correct answer is **option 3** i.e. 16 years

Suppose the ages of Rishabh, Tanvi, Paras and Vanya are a, b, c and d respectively;

Given: Sum of ages = 43

$$\text{So, } a + b + c + d = 43 \dots\dots\dots (1)$$

Sum of ages of Tanvi and Vanya is 7 times the age of Rishabh:

$$\text{So, } b + d = 7a \dots\dots\dots (2)$$

Paras is 7 years older than Rishabh:

$$\text{So, } c = a + 7 \dots\dots\dots (3)$$

From equations 1, 2 and 3:

$$\Rightarrow a + 7a + a + 7 = 43$$

$$\Rightarrow 9a = 36$$

$$\Rightarrow a = 4$$

$$\text{Now, } b + d = 28 \dots\dots\dots (4)$$

Tanvi is 4 years younger than Vanya;

$$\text{So, } d = b + 4 \dots\dots\dots (5)$$

From equations 4 and 5:

$$\Rightarrow 2b + 4 = 28$$

$$\Rightarrow b = 12$$

$$\text{Hence, age of Vanya} = d = 16 \text{ years}$$

Q:5 The correct answer is **option 1** i.e. Rs. 130.

Given: The total price of 11 chargers and 12 tempered glasses is Rs. 1490 and the total price of 5 chargers and 18 tempered glasses is Rs. 1430.

Suppose X and Y are the prices of 1 charger and 1 tempered glass.

$$\text{So, } 11X + 12Y = 1490 \dots\dots\dots (1)$$

$$\text{And } 5X + 18Y = 1430 \dots\dots\dots (2)$$

Multiply equation (1) by 3 and equation (2) by 2 and subtract them:

$$\Rightarrow 23X = 1610$$

$$\Rightarrow X = 70 \text{ And } Y = 60$$

Hence, The sum of the price of 1 charger and 1 tempered glass = $(70 + 60) = \text{Rs. } 130$

Q:6 The correct answer is **option 5** i.e. 8

Price of pizza and burger in a hotel are $(14x + 13)$ and $10(x - 2)$ respectively

$$\text{Hence, Total cost of 2 pizzas and 3 burgers} = 2(14x + 13) + 30(x - 2) = 28x + 26 + 30x - 60 = 58x - 34$$

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Given: Total cost of 2 pizzas and 3 burgers is $(6x^2 + 46)$

So, $58x - 34 = (6x^2 + 46)$

$\Rightarrow 6x^2 + 46 - 58x + 34 = 0$

$\Rightarrow 6x^2 - 58x + 80 = 0$

$\Rightarrow 3x^2 - 29x + 40 = 0$

$\Rightarrow 3x^2 - 24x - 5x + 40 = 0$

$\Rightarrow 3x(x - 8) - 5(x - 8) = 0$

$\Rightarrow x = 8 \text{ \& } 5/3$

$x = 5/3$ is not possible as it will give negative value for price of burger.

Hence, $x = 8$

Q:7 The correct answer is **Option 3** i.e. **Rs 600**.

The average price of tickets of Gallery and VVIP categories is Rs. 925

Hence, Total price of tickets of Gallery and VVIP categories = $925 \times 2 = \text{Rs. } 1850$

Average price of tickets of Gallery and VVIP categories is Rs. 925 which is Rs. 25 less than the price of VIP category ticket.

So, Price of VIP category ticket = $925 + 25 = \text{Rs. } 950$

The average price of tickets of 4 categories is Rs. 850.

So, Total price of tickets of 4 categories = $850 \times 4 = \text{Rs. } 3400$

Hence, Price of Balcony ticket = $3400 - (1850 + 950) = \text{Rs. } 600$

Q:8 The correct answer is **option 2** i.e. **Rs. 80**.

Suppose per liter prices of petrol and diesel in May were 'x' and 'y' respectively.

So, $3x + 4y = 500$ (1)

Next month:

Price of petrol = $(x + 10)/\text{liter}$

Price of diesel = $(y - 5)/\text{liter}$

So, $4(x + 10) + 3(y - 5) = 540$

$\Rightarrow 4x + 3y = 540 - 40 + 15$

$\Rightarrow 4x + 3y = 515$ (2)

Solve equation 1 and 2.

We get,

$\Rightarrow 7y = 455$

$\Rightarrow y = 65$

and $x = 80$

Hence, Per liter price of petrol in May = Rs. 80

Q:9 The correct answer is **option 4** i.e. **25**

Suppose the number of rows and columns initially were 'x' and 'y' respectively.

Total bikes initially:

$x \times y = 480$ (1)

Number of rows after the rearrangement = 'x - 5'

Number of columns after the rearrangement = 'y + 2'

So, Total bikes after rearrangement:

$(x - 5) \times (y + 2) = 93.75\% \text{ of } 480 = 450$

$\Rightarrow xy + 2x - 5y - 10 = 450$

From equation 1:

$\Rightarrow 480 + 2x - 5y - 10 = 450$

$\Rightarrow 2x - 5y = -20$

$\Rightarrow 5y - 2x = 20$ (2)

Solving equations 1 and 2:

$x = 30$ and $y = 16$

Hence, Total number of rows after the rearrangement = $x - 5 = 30 - 5 = 25$

Q:10 The correct answer is **option 4** i.e. **3/8**

Given that,

$\Rightarrow (x/5) + (y/9) = -19/45$

$\Rightarrow 9x + 5y + 19 = 0$ (1)

and, $\Rightarrow x + 4y = 22$ (2)

From (2) $\times 9 -$ (1):

$\Rightarrow 9x + 36y - 9x - 5y - 19 = 198$

$\Rightarrow 31y = 217$

$\Rightarrow y = 7$

From (2):

$x = 22 - 4 \times 7 = -6$

Now, from the question: $(x + 3y)/(6y + x/3)$

$\Rightarrow (-6 + 21)/(42 - 2)$

$\Rightarrow 15/40 = 3/8$