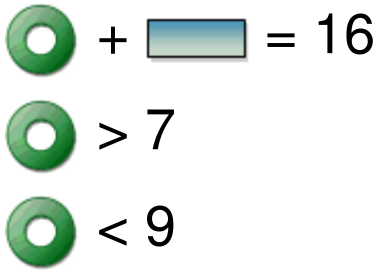
Answer the questions

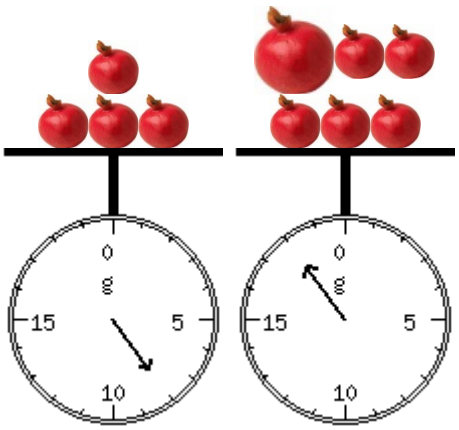
(1) The parking lot of a fairground has a capacity of 1241 cars. On Tuesday, the ratio of the empty parking spots to occupied parking spots is 26:47. How many cars were parked there on that day?

(2) 

Find value of  .

(3) Andrew, a carpenter is given the job of making a boat. He charges $420 per hour for his work. Every day, he starts working at 05:15 in the morning and continues to work till 06:45 in the evening. He takes a break for 2 hours 45 minutes every day. If he is paid $54180 for his work, then how many days did he work to build the boat?

(4) What is the weight of big pomegranate?



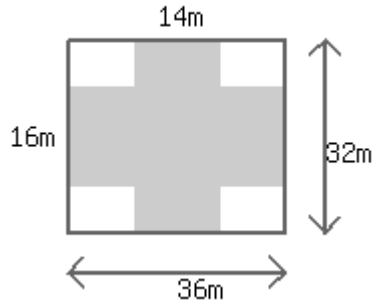
(5) What percentage of the following letters can be drawn using straight lines ?
K L X Z G O P S U

(6) Find the missing number.

17	8	17
3 [50] 13	6 [38] 20	? [50] 7
17	4	20

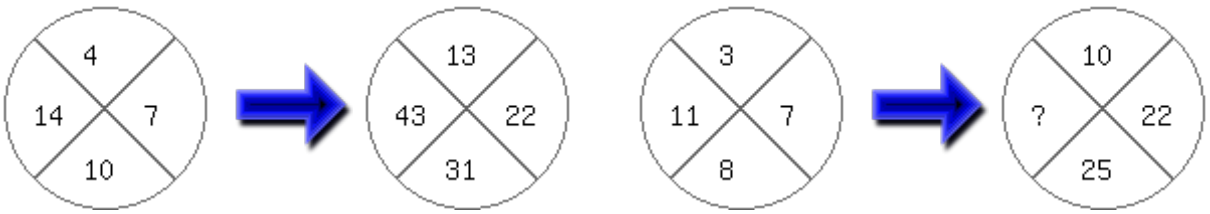
(7) Christian buys 247 barrels of oil, but has to sell it all at a loss. He sells it at $\frac{17}{19}$ of the price he bought it at, and gets $346528. If instead, he wants to make a profit of $\frac{6}{13}$ over the price he bought it at, then at what price does he have to sell the whole lot at?

(8) What is the area of the shaded region in the given figure?



(9) Among five friends, Evan is taller than Zachary, but not as tall as Brooke. Robert is taller than Jonathan but shorter than Zachary. Who is the shortest in the group ?

(10) Find the missing number:



(11) Evan roughly estimates product **51 × 598** as follows,
- He rounded off each number to the nearest ten.
- Then he multiplied the numbers.

What is his estimate?

(12) Haley loves to run. She starts running at 05:20 AM. On weekdays she completes 8 rounds of the park, finishing at 6:16 AM. On weekends she runs 7 extra rounds of the park. Given that she always runs with the same speed, at what time does she finish her run on the weekends?

(13) When 16 is added to 20 % of a number, it gives the number itself. Find the number.

(14) If today is Sunday, what will be the day after 49 days?

Check True/False

(15) If salary of David is 19% more than salary of Sarah , salary of Sarah will be 19% less than salary of David.

○ True ○ False

Many more such worksheets can be generated at www.edugain.com

Answers

(1) 799

Step 1

Capacity of the parking in the fairground = 1241 cars
Let us assume that the occupied parking spots have x number of cars. Therefore, the number of empty parking spots = Capacity of the parking in the fairground - Occupied parking spots
=> $1241 - x$

Step 2

Therefore, the ratio of the empty parking spots to the occupied parking spots = $(1241 - x):x = \frac{1241 - x}{x}$

Step 3

Since, it is given that the ratio of the empty parking spots to the occupied parking spots is 26:47.

$$\frac{26}{47} = \frac{1241 - x}{x}$$

Or, $26x = 47(1241 - x)$
Or, $26x = 47 \times 1241 - 47x$
Or, $26x + 47x = 58327$
Or, $73x = 58327$
Or, $x = \frac{58327}{73}$
Or, $x = 799$

Step 4

Therefore, the number of cars parked in the parking lot = x = **799 cars**

(2)  =8

Step 1

Second relationship states that the value of a ring is greater than 7, therefore possible values are,

 = 8

 = 9

 = 10

.... and so on.

Step 2

Third relationship states that the value of a ring is less than 9, therefore among above given values only possible value is,

 = 8

Step 3

First relationship states that sum of the values of a ring and a rectangle is 16. Therefore, if we subtract the value of the ring from 16, we get the value of the rectangle.

 = 16 – 

⇒  = 16 – 8

⇒  = 8

(3) 12 days

Step 1

Let us first find the number of hours he works every day. He starts at 05:15 AM or 0515 hours and works till 06:45 PM or 2145 hours every day.
Thus, the number of hours he works everyday(not considering the break time) = 2145 hours – 0515 hours = 13 hours 30 minutes

Step 2

He takes a break for 2 hours 45 minutes every day.
This means he works for 13 hours 30 minutes – 2 hours 45 minutes = 10 hours 45 minutes = (10 × 60) + 45 minutes = 645 minutes every day.

Step 3

The total amount paid to Andrew = $54180
Charges per hour = $420

Charges per minute = $\frac{\$420}{60}$ = $7

Number of minutes he spent working = $\frac{54180}{7}$ = 7740 minutes.

Step 4

So, number of days he needs to work to build a boat

$$= \frac{\text{Total number of minutes he worked}}{\text{Total number of minutes he worked in a day}}$$

$$= \frac{7740 \text{ minutes}}{645 \text{ minutes}}$$

$$= 12 \text{ days}$$

Step 5

Thus, he worked for **12 days** to build the boat.

(4) 8 g

Step 1

If we look at first scale carefully, we will notice that the weight of 4 pomegranates is 8 g.

Therefore, the weight of a pomegranate = $\frac{8}{4}$ = 2 g

The weight of 5 pomegranates = 2 × 5 = 10 g

Step 2

If we look at the second scale carefully we will notice that the weight of one big pomegranate and 5 pomegranates is 18 g.
Since, the weight of 5 pomegranates is 10 g, the weight of big pomegranate = 18 - 10 = 8 g

(5) 44.44

Step 1

K L X Z G O P S U

On looking at the given letters carefully, we notice that the letters that can be drawn using straight lines are K L X Z.

Step 2

So, the number of letters that can be drawn using straight lines = 4

Total number of letters = 9

Step 3

Now, the percentage of letters that can be drawn using straight lines =

$$\frac{\text{Letters that can be drawn using straight lines}}{\text{Total number of letters}} \times 100$$

$$= \frac{4}{9} \times 100$$

= **44.44%**.

(6) 6

Step 1

If we notice the 1st and the 2nd picture, it can be seen that the number in the center is the sum of the other four numbers.

17 + 3 + 17 + 13 = 50 and 8 + 6 + 4 + 20 = 38

Step 2

Therefore, the 3rd picture should also follow this pattern,

17 + ? + 20 + 7 = 50

⇒ ? = 50 - 44

⇒ ? = 6

(7) $566048

Step 1

Let us assume that the cost price of the tables is $x. The selling price is given to be $\frac{17}{19}$ of the cost price, which means the selling price will be $\frac{17x}{19}$.

Step 2

The selling price is given equal to $346528, which means $\frac{17x}{19}$ = 346528. Let us multiply both side by 19, we get 17x = 346528 × 19, or 17x = 6584032. Now let us divide each side by 17, we get x = $\frac{6584032}{17}$ = 387296.

Step 3

This means that the cost price is $387296. Now if he has to make a profit of $\frac{6}{13}$ of the cost price, the profit amount will be equal to $387296 × $\frac{6}{13}$ = $178752.

Step 4

New selling price will be equal to the cost price + profit amount = $387296 + $178752 = $566048.

(8) 800 m^2

Step 1

The given figure is a rectangle, where the length is 36m and the breadth is 32m.

Step 2

There are 4 rectangles unshaded at the corners of the figure. If we find their area and subtract from the area of whole rectangle, we'll get the area of the shaded portion.

Step 3

The shaded length is 14m, therefore the length of the unshaded area will be 36 - 14 = 22m. Since the shaded length lies at the center, we can say that the length of the rectangles at the corners is $\frac{22}{2}$ = 11m each.

Step 4

The shaded breadth is 16m, therefore the unshaded breadth will be 32 - 16 = 16m. Again, since the breadth lies at the center, we can say that the breadth of the corner rectangles will be $\frac{16}{2}$ = 8m

Step 5

We now have four unshaded rectangles of length 11m and breadth 8m. The area of one such rectangle will be 11 × 8 = 88 sq. m.

Step 6

Therefore the area of four such rectangles will be 4 × 88 = 352 sq. m.

Step 7

The area of the big rectangle = 36 × 32 = 1152 sq. m.

Step 8

Therefore the area of the shaded portion = 1152 - 352 = 800 sq. m.

(9) Jonathan

Step 1

Evan is taller than Zachary, this means Evan is taller than someone.

Step 2

Evan is not as tall as Brooke, which means Brooke is also taller than someone.

Step 3

Robert is taller than Jonathan, this means Robert is also taller than someone.

Step 4

Robert is shorter than Zachary, this means Zachary is also taller than someone.

Step 5

The only one left who is not taller than anyone is **Jonathan.**

(10) 34

Step 1

If we compare numbers in first two pictures, we will observe that numbers are multiplied by 3 and then 1 is added,
4 × 3 + 1 = **13**
7 × 3 + 1 = **22**
10 × 3 + 1 = **31**
14 × 3 + 1 = **43**

Step 2

Similarly, if we compare numbers in last two pictures, we will observe that here also numbers are multiplied by 3 and then 1 is added,
3 × 3 + 1 = **10**
7 × 3 + 1 = **22**
8 × 3 + 1 = **25**

Step 3

Therefore, we can find missing number by multiplying 3 by 11, and then by adding 1,
Missing number = **11** × 3 + 1 = **34**

Step 4

Thus, the missing number is 34.

(11) 30000

Step 1

Rounding off 51 and 598 individually to their nearest tens gives us 50 and 600 respectively.

Step 2

Multiplying the numbers, we get 50 × 600 = 30000

Step 3

Hence, the product estimated by Evan is 30000.

(12) 7:05 AM

Step 1

Haley starts running at 05:20 AM or 05:20 and runs till 6:16 AM or 06:16. She runs for 06:16 – 05:20 = 00:56.

Step 2

00:56 hours can also be written as (0 × 60) + 56 = 56 minutes.

Step 3

This means she takes 56 minutes to complete 8 rounds of the park. So to complete 1 round of the park she takes $\frac{56}{8}$ = 7 minutes.

Step 4

She runs 7 extra rounds on weekends. This means she runs for 7 × 7 = 49 extra minutes on weekends.

Step 5

Thus, time for which she ran on weekends = 56 minutes + 49 minutes = 105 minutes = 1 hour 45 minutes

Step 6

Thus, Haley will finish her runs on weekends at 05:20 + 01:45 = 07:05 or 7:05 AM.

(13) 20

Step 1

Let us assume the number to be x.

$$20\ \%\ \text{of}\ x = x \times \frac{20}{100} = \frac{20x}{100}$$

Step 2

If we look at the question carefully, we will notice that the number(x) is equal to the sum of 16 and 20 % of x.

So, it can be written as:

$$x = 16 + \frac{20x}{100}$$

$$\Rightarrow x = \frac{16 \times 100 + 20x}{100}$$

$$\Rightarrow x = \frac{1600 + 20x}{100}$$

By cross multiplying both the sides

$100\ x = 1600 + 20x$

$\Rightarrow 100\ x - 20x = 1600$

$\Rightarrow 80x = 1600$

$$\Rightarrow x = \frac{1600}{80}$$

$\Rightarrow x = 20$

Step 3

Therefore, the number is **20**.

(14) Sunday

Step 1

One full week has 7 days. Let us think how many full weeks will be there in 49 days.

Step 2

When we divide 49 by 7, we get 7 as quotient and 0 as remainder. This means in 49 days we have 7 full weeks and 0 extra days:

49 days = 7 full weeks + 0 extra days

Step 3

If today is Sunday, after 7 full weeks it will be Sunday again, and after 0 more days, it will be Sunday.

(15) False

Step 1

When salary of Sarah is compared with salary of David, percentage is calculated using ratio of salary difference relative to David's salary.

Step 2

While if we compare salary of David with salary of Sarah, the absolute difference remains same, but relative difference will change, since now percentage will be relative to Sarah's salary.

Step 3

Therefore, these two percentages will be different. Hence, this statement is False.