Q1: $\left(7+\frac{1}{3}\right)\div\left(4+\frac{1}{3}\right)=?$

A) $\frac{19}{3}$ **B)** $2\frac{11}{3}$ **C)** $1\frac{11}{3}$ **D)** $1\frac{9}{13}$

Solution:

$$\left(7+\frac{1}{3}\right)\div\left(4+\frac{1}{3}\right)=\left(\frac{22}{3}\right)\div\left(\frac{13}{3}\right)=\frac{22}{3}\times\frac{3}{13}$$

$$\Rightarrow\frac{22}{\cancel{3}}\times\frac{\cancel{3}}{13}=\frac{22}{13}=1\frac{9}{13}$$

Answer: D

Q2: How many times 0.2 is equal to 0.02?

A) 0.1 **B)** 10 **C)** 0.01 **D)** 0.5

Solution:

$$\frac{0.02}{0.2}=0.1$$

Answer: A

Q3: Which of the following is not a factor of 72?

A) 9 **B)** 16 **C)** 12 **D)** 18

Solution:

The factors of 72 are

$1,2,3,4,6,8,9,12,18,24,36,48,72$

So 16 is not a factor of 72

Answer: B

Q4: $\frac{\frac{1}{2}+\frac{1}{2}+\frac{1}{3}+\frac{1}{3}+\frac{1}{3}}{6}=?$

A) $\frac{3}{3}$ **B)** $\frac{1}{3}$ **C)** $\frac{2}{3}$ **D)** $\frac{4}{3}$

Solution:

$$\frac{\frac{1}{2}+\frac{1}{2}+\frac{1}{3}+\frac{1}{3}+\frac{1}{3}}{6}=\frac{\frac{1+1}{2}+\frac{1+1+1}{3}}{6}=\frac{\frac{2}{2}+\frac{3}{3}}{6}$$

$$=\frac{1+1}{6}=\frac{2}{6}=\frac{1}{3}$$

Answer: B

Q5: $0.75+\frac{1}{4}-\frac{1}{2}=?$

A) $\frac{1}{8}$ **B)** $\frac{1}{4}$ **C)** $\frac{1}{2}$ **D)** 1

Solution:

$$0.75+\frac{1}{4}-\frac{1}{2}=\frac{75}{100}+\frac{1}{4}-\frac{1}{2}=\frac{3}{4}+\frac{1}{4}-\frac{1}{2}=\frac{3+1-2}{4}$$

$$=\frac{2}{4}=\frac{1}{2}$$

Answer: C

Q6: $\frac{84-\left[72-12\times5\right]}{13-16\div4}=?$

A) 5 **B)** 6 **C)** 7 **D)** 8

Solution:

$$\frac{84-\left[72-12\times5\right]}{13-16\div4}=\frac{84-\left[72-60\right]}{13-4}=\frac{84-12}{9}$$

$$=\frac{72}{9}=8$$

Answer: D

Q7: Which of the following is equal to $\frac{8}{40}$?

A) $\frac{15}{65}$ **B)** $\frac{5}{35}$ **C)** $\frac{7}{35}$ **D)** $\frac{20}{35}$

Solution:

$\frac{8}{40}=\frac{1}{5}$ and $\frac{7}{35}=\frac{1}{5}$

So $\frac{8}{40}=\frac{7}{35}=\frac{1}{5}$

Answer: C

Q8: "A" is a natural number. What is the value of "A" if LCM of (A,12) =36 and HCF of (A,12)=6?

A) 18 B) 24 C) 6 D) 9

Solution:

The LCM of 18 and 12 is 36 and the HCF of 18 and 12 is 6. So the correct answer is 18.

Answer: A

Q9: $\left(\frac{12}{7}\div\frac{8}{14}\right)+\frac{1}{2}\times\frac{3}{5}=?$

A) $\frac{61}{25}$ **B)** $\frac{7}{2}$ **C)** $\frac{33}{10}$ **D)** $\frac{9}{5}$

Solution:

$$\left(\frac{12}{7}\div\frac{8}{14}\right)+\frac{1}{2}\times\frac{3}{5}=\left(\frac{\cancel{12}^{3}}{\cancel{7}^{1}}\times\frac{\cancel{14}^{2}}{\cancel{8}^{\cancel{2}}}\right)+\frac{3}{10}=3+\frac{3}{10}=\frac{33}{10}$$

Answer: C

Q10: $7\frac{1}{3}-3\frac{4}{5}+2\frac{7}{15}=?$

A) 6 **B)** $5\frac{2}{3}$ **C)** $6\frac{2}{3}$ **D)** $5\frac{1}{3}$

Solution:

$$7\frac{1}{3}-3\frac{4}{5}+2\frac{7}{15}=\frac{22}{3}-\frac{19}{5}+\frac{37}{15}=\frac{110-57+37}{15}$$

$$=\frac{90}{15}=6$$

Answer: A

Q11: Which two numbers have an LCM of 40?

A) 4 & 5 **B) 10 & 20**
C) 20 & 15 **D) 5 & 8**

Solution:

The LCM of 4 and 5 is 20
The LCM of 10 and 20 is 20
The LCM of 20 and 15 is 60
The LCM of 5 and 8 is 40

Answer: D

Q12: Which of the following is correct?

A) $\frac{7}{9}<\frac{35}{43}<\frac{5}{6}$ **B)** $\frac{5}{6}<\frac{35}{43}<\frac{7}{9}$

C) $\frac{35}{43}<\frac{7}{9}<\frac{5}{6}$ **D)** $\frac{35}{43}<\frac{5}{6}<\frac{7}{9}$

Solution:

$$\left.\begin{array}{l}\frac{7}{9}=0,77...\\ \frac{35}{43}=0.81...\\ \frac{5}{6}=0.83...\end{array}\right\}\Rightarrow\frac{7}{8}<\frac{35}{43}<\frac{5}{6}$$

Answer: A

Q13: A boy spends $\frac{2}{7}$ of his pocket money on books and $\frac{2}{3}$ on sweets. What fraction is left with him?

A) $\frac{5}{21}$ **B)** $\frac{4}{21}$ **C)** $\frac{1}{21}$ **D)** $\frac{2}{21}$

Solution:

$$1-\left(\frac{2}{7}+\frac{2}{3}\right)=1-\frac{20}{21}=\frac{1}{21}$$

Answer: C

Q14: If the price of 27 books is Rs. 5400, what is the price of 7 books?

A) Rs. 1400 **B) Rs. 700**
C) Rs. 2100 **D) Rs. 3500**

Solution:

The price of 27 books is Rs. 5400, so the price of 1 book is Rs.5400/27=Rs. 200

So the price of 7 books is;

7 x Rs. 200= Rs. 1400

Answer: A

Q15: What is the sum of first five odd prime numbers?

A) 19 **B) 21** **C) 28** **D) 39**

Solution:

$$3+5+7+11+13=39$$

Answer: D

Q16: Which of the following is the smallest ratio?

A) $\frac{4}{6}$ **B)** $\frac{10}{12}$ **C)** $\frac{21}{24}$ **D)** $\frac{18}{24}$

Solution:

Taking LCM

A) $\frac{4}{6}=\frac{16}{24}$ **B)** $\frac{10}{12}=\frac{20}{24}$ **C)** $\frac{21}{24}$ **D)** $\frac{18}{24}$

So , option A is the smallest one.

Answer: A

Q17: 122333444455555.....

The numbers above are ordered according to a rule.

What is the 39th number in the order?

A) 6 **B) 7** **C) 8** **D) 9**

Solution:

1 is repeated once. 2 is repeated 2 times. Each number is repeated as much as itself.

So 1+2+3+4+5+6+7+8=36

That means the 36th number is 8. The next 9 numbers will be 9. So the 39th number will be 9.

Answer: D

Q18: Area of a square is 121 cm^2. Find the perimeter of the square.

A) 22 cm **B) 28 cm** **C) 36 cm** **D) 44 cm**

Solution:

If area of a square is 121 cm^2. The measure of one side of the square will be 11 cm. The perimeter of the square will be 4 times its one side.

$$4\times 11cm=44cm$$

Answer: D

Q19: Which of the following is a prime number?

A) $12-(4\times 2)$ **B)** $4+5\times 5$
C) $21-3\times 5$ **D)** $1+2+3+4$

Solution:

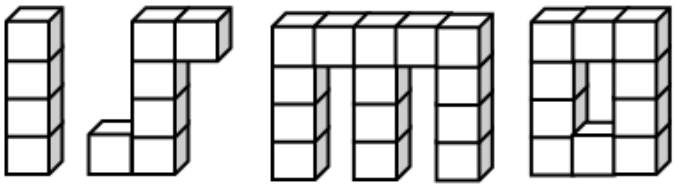
Let's have simplification.

$$12-(4\times 2)=12-8=4$$
$$4+5\times 5=4+25=29$$
$$21-3\times 5=21-15=6$$
$$1+2+3+4=10$$

So as you see above B option is prime number

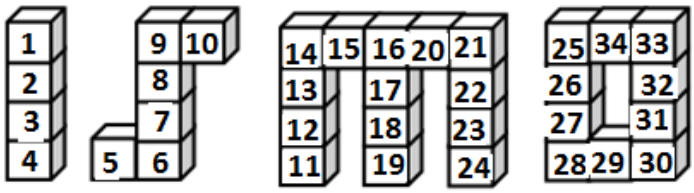
Answer: B

Q20: How many cubes are used in the word ISMO?



A) 34 B) 36 C) 38 D) 40

Solution:



So, there are 34 cubes used in the figure

Answer: A

Q21: Which one of the following has the smallest remainder?

A) $4002 \div 4$ B) $503 \div 5$
C) $607 \div 6$ D) $72 \div 7$

Solution:

Divide each number by indicated number.
The remainder when 4002 is divided by 2 is 2
The remainder when 503 is divided by 5 is 3
The remainder when 607 is divided by 6 is 1
The remainder when 72 is divided by 7 is 2

Answer: C

Q22: $4 \times \left(0.5 + \frac{1}{2} + 2\frac{1}{4} \right)$

A) 13 B) 17 C) 15 D) 19

Solution:

$$4 \times \left(0.5 + \frac{1}{2} + 2\frac{1}{4} \right) = 4 \times \left(\frac{1}{2} + \frac{1}{2} + 2\frac{1}{4} \right)$$
$$= 4 \times \left(\frac{2}{4} + \frac{2}{4} + \frac{9}{4} \right)$$
$$= 4 \times \left(\frac{13}{4} \right)$$
$$= \cancel{4} \times \left(\frac{13}{\cancel{4}} \right) = 13$$

Answer: A

Q23: Which operation below is the same as $21 + 11 \times 13$?

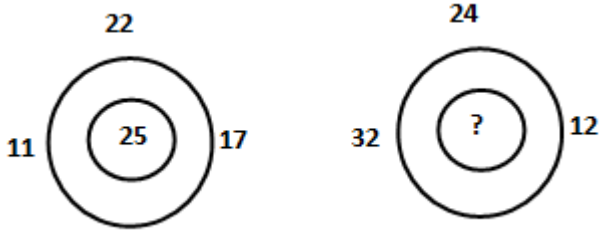
A) 32×13 B) $21 + 143$
C) 416 D) 21×24

Solution:

$21 + 11 \times 13 = 21 + 143 \quad \therefore 11 \times 13 = 143$

Answer: B

Q24: Find the unknown number in the pattern.



A) 32 B) 36 C) 38 D) 34

Solution:

The number in center is the half of the sum of other numbers..

$$\frac{11+22+17}{2}=\frac{50}{2}=25$$

So, $$?=\frac{32+24+12}{2}=\frac{68}{2}=34$$

$$?=34$$

Answer: D

Q25: What is the sum of 20% of $\frac{1}{2}$ of 120 and 25% of $\frac{1}{3}$ of 180?

A) 27 B) 24 C) 21 D) 29

Solution:

$$\frac{20}{100}\times\frac{1}{2}\times120+\frac{25}{100}\times\frac{1}{3}\times180$$
$$=12+15$$
$$=27$$

Answer: A

Q26: $6\times222-3\times111=?$

A) 666 B) 999 C) 333 D) 1322

Solution:

$$6\times222-3\times111$$
$$=111\times(12-3)$$
$$=111\times9$$
$$=999$$

Answer: B

Q27: "A" is the smallest two digit whole number; "B" is the sum of prime numbers up to 10. What is A+B?

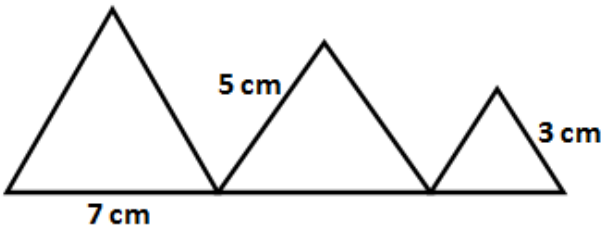
A) 24 B) 25 C) 26 D) 27

Solution:

$$\left.\begin{aligned}A&=10\\B&=2+3+5+7=17\end{aligned}\right\}A+B=10+17=27$$

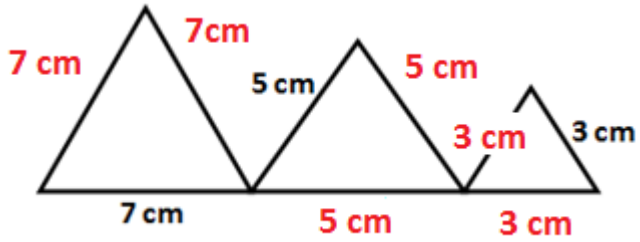
Answer: D

Q28: The given figure is made by three different equilateral triangles. Find the perimeter of the whole figure.



A) 30 cm B) 36 cm C) 40 cm D) 45 cm

Solution:



$$P=3\times7\,cm+3\times5\,cm+3\times3\,cm$$
$$P=21\,cm+15\,cm+9\,cm$$
$$P=45\,cm$$

Answer: D

Q29: A mother has three children who are 6, 9 and 12 years old. The age of the mother is

divisible by the age of each child. At least how old is the mother?

A) 36 B) 38 C) 40 D) 42

Solution:
If the age of mother divides the age of each child, then the age of mother is the LCM of the ages of children.
Take the LCM of 6, 9 and 12
LCM(6,9,12)=36
The age of mother is 36

Answer: A

Q30: Which of the following numbers is less than 8.001?

A) 8.1 B) 8.011 C) 8.0 D) 8.101

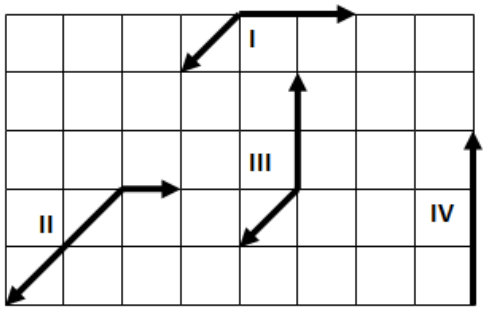
Solution:
Lets equal the decimal part of the numbers
8.1=8.100
8.011=8.011
8.0=8.000
8.101=8.101

Now, all the numbers has equal number of digits after the decimal point. We can check the decimal part of the numbers because the hold parts of the numbers are equal

As we see above 8.000 is less than 8.001

Answer: C

Q31: Which two paths are equal to each other in size?



A) I-II B) I-III C) II-IV D) III-IV

Solution:

We can name the different parts of each line.
I has one diagonal and two straights
II has two diagonals and one straight
II has one diagonal and two straights
IV has three straights

So, I and III are equal in measure

Answer: B

Q32: Abdullah's horse eats about 3 bales of hay every 5 days. About how many bales of hay Abdullah's horse will eat in 45 days?

A) 24 B) 27 C) 30 D) 33

Solution:

The horse can eat 3 bales in 5 days. The horse can eat $\frac{3}{5}$ bales in 1 day.

That means the horse can eat $\frac{3}{5}\times 45 = 27$ bales in 45 days.

Answer: B

Q33: There are three squares in the figure and the measurement of the side of each square is half the previous one. Find the perimeter of the figure

if the measurement of one side of the smallest square is 8 cm.

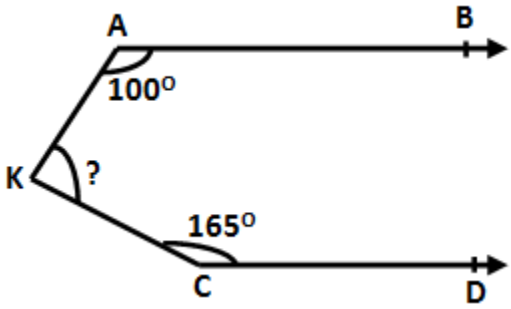
A) 176 cm B) 224 cm
C) 256 cm D) 332 cm

Solution:

There are 3 sides if the last square where each one is 8 cm. It makes 24 cm in total.
There are two and half sides in middle square where each side is 16 cm. It makes 40 cm.
There are three and half sides in first square where each side is 32 cm. It makes 112 cm.
So perimeter of the figure is (24+40+112) cm=176cm

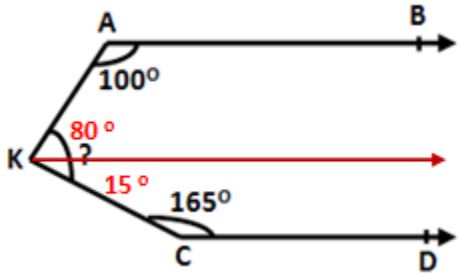
Answer: A

Q34: What is the measure of the unknown angle in the figure if the lines AB and CD are parallel?



A) 75° B) 85° C) 95° D) 65°

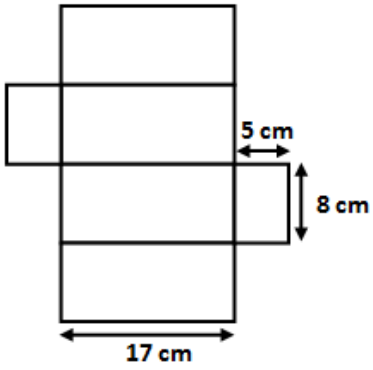
Solution:



Draw a line passing form K and parallel to AB and CD. The angle K divided in parts, one part is 80° and the other one is 15° (supplementary angles)

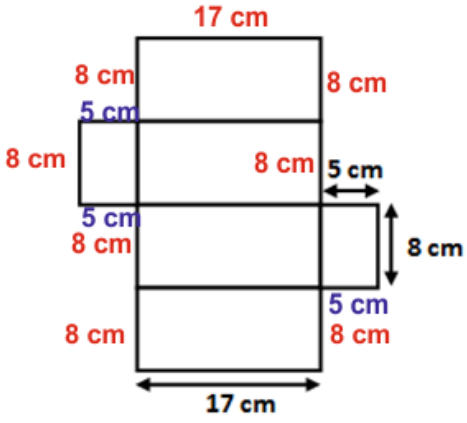
Answer: C

Q35: Find the perimeter of the given figure which is made by rectangular prism.



A) 156 B) 144 C) 118 D) 98

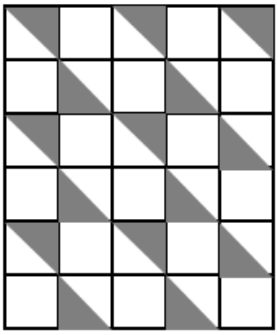
Solution:



The equal sides are marked with same color in the figure. There are 7 equal sides where each side is 8 cm, 4 sides 5 cm each and 2 sides 17 cm each. Perimeter is 8x8cm+4x5cm+2x17cm=118cm

Answer: C

Q36: Which of the following fractions represents the shaded region of the figure?



A) $\frac{1}{4}$ B) $\frac{1}{3}$ C) $\frac{1}{2}$ D) $\frac{3}{14}$

Solution:

There are 30 parts (squares) in the whole part and each one is divided in two, so there are total 60 half parts in the whole part. Out of 60 half parts, 15 of them are shaded.

The ratio of shaded region is 15/60=1/4

Answer: A

Q37: What is the value of $a \times b$ according to the table?

x		4	6
		b	18
a		24	36

A) 48 B) 66 C) 72 D) 84

Solution:

This table is a multiplication table. According the table $a \times 4 = 24$, $a = 6$

x		4	6
3		b	18
a		24	36

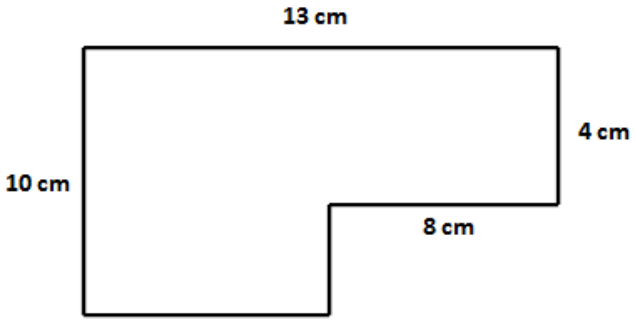
b=3x4=12

ax4=24 a=6

axb=6x12=72

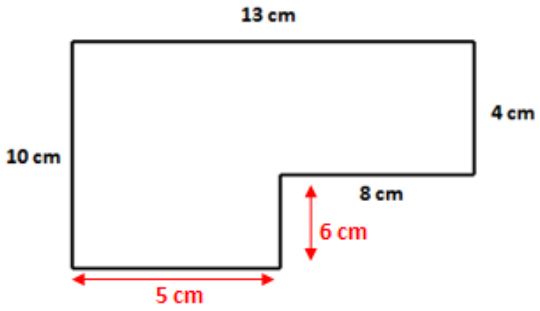
Answer: C

Q38: Find the perimeter of the following figure



A) $37\,cm$ B) $41\,cm$ C) $46\,cm$ D) $49\,cm$

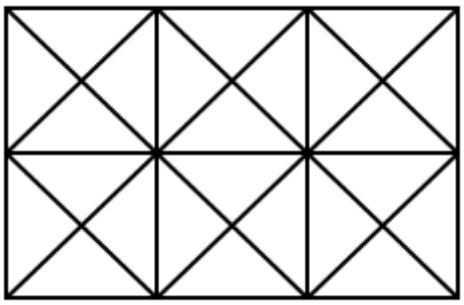
Solution:



Perimeter of the figure is 10cm+13cm+4cm+8cm+6cm+5cm=46cm

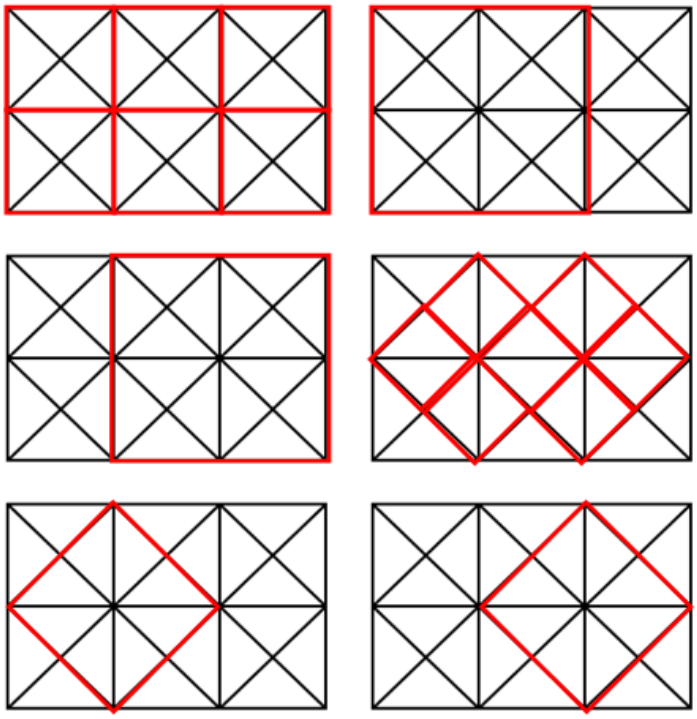
Answer: C

Q39: How many squares are there in the given figure?



A) 15 B) 16 C) 17 D) 18

Solution:



The red square shows how many squares there are in the figure

Answer: C

Q40: Umer gives 12 more than $\frac{1}{4}$ of his books to Hassan and 10 more than $\frac{1}{3}$ of his books to Fatima. If finally there are 18 books with Umer, How many books does Umer have at the beginning?

A) 56 B) 64 C) 72 D) 96

Solution:

$\frac{1}{3}+\frac{1}{4}=\frac{7}{12}$

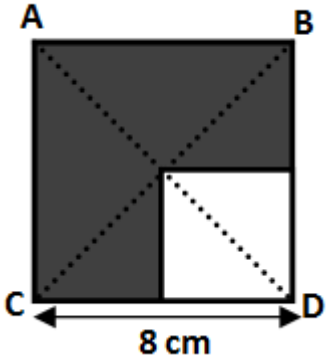
The number of books is $\frac{7}{12}$ of books + 12+10+ 18

That means $\frac{7}{12}$ of books +40 books. It means that 40 books is $\frac{5}{12}$ of the books. If $\frac{5}{12}$ of the books is 40.

All the books are $40\times\frac{12}{5}=96$

Answer: D

Q41: Find the area of shaded region.



A) $36\,cm^2$ B) $48\,cm^2$

C) $52\,cm^2$ D) $38\,cm^2$

Solution:

Thearea of ABCD is $(8cm)^2 = 64cm^2$. Shaded area is $\frac{3}{4}$ of area of ABCD.

Shaded area= $64cm^2 \times \frac{3}{4} = 16cm^2 \times 3 = 48cm^2$

Answer: B

Q42:

$INTER \text{ ------} \rightarrow 7$

$SCHOOLS \text{ ----} \rightarrow 9$

$MATH \text{ ------} \rightarrow 5$

$OLYMPIAD \text{ ----} \rightarrow ?$

There is a relationship between words and numbers. What should be come instead of question mark?

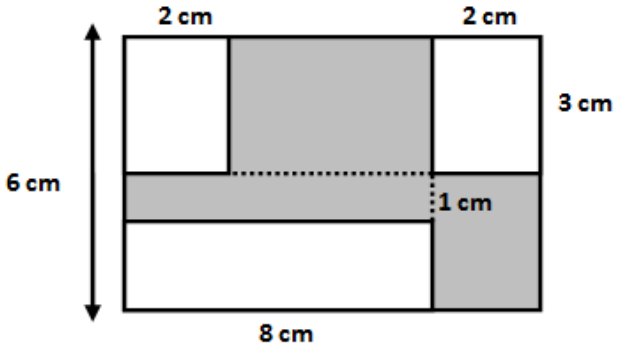
A) 7 B) 9 C) 11 D) 13

Solution:

In this pattern, we count each vowel letter as 2 and each consonant letter as 1
INTER=2+1+1+2+1=7
SCHOOLS=1+1+1+2+2+1+1=9
MATH=1+2+1+1=5
OLYMPIAD=2+1+1+1+1+2+2+1=11

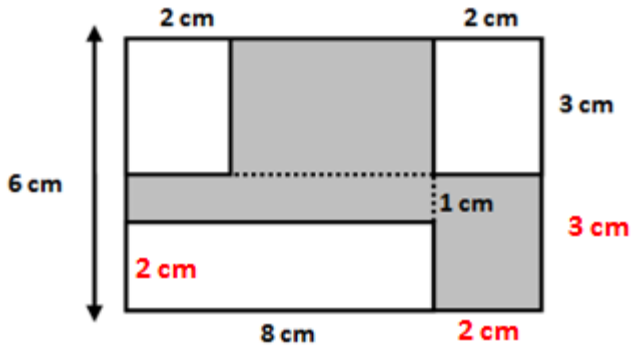
Answer: C

Q43: Find the area of shaded region if the figure is made by rectangles.



A) 24cm² B) 28cm² C) 32cm² D) 36cm²

Solution:



Total area: 6cmx10=60cm²
Shaded area is 60 cm² – (6 cm² + 6 cm² +16 cm²) =32 cm²

Answer: C

Q44: Each letter below stands for a distinct number.
The sequence shows the division method used to find the prime factorization of a number A.

A	2
B	2
C	3
D	5
1	

What is A?

A) 50 B) 60 C) 80 D) 90

Solution:

This is the prime factorization of A. So A is equal to 2x2x3x5=60

Answer: B

Q45: Which of the following is the least common multiple that Ayesha can use to add three fractions with denominators of 2, 3, and 4?

A) 8 B) 12 C) 24 D) 36

Solution:

When we add fractions, first we equal to denominators. Ayesha will take the LCM of 2,3 and 4.
LCM of (2,3 and 4) is 12

Answer: B

Q46: Haris is 12 years old. His small brother is 2 years younger than him and his sister is 5 years elder than him. What is the average of ages of Haris, his brother and his sister?

A) 10 B) 11 C) 12 D) 13

Solution:
Haris's small brother is 12-2=10 years old and his sister is 12+5=12 years old. The average of their ages is (10+12+17)/3=13

Answer: D

Q47: Find the greatest number that will divide 43, 91 and 183 so as to leave the same remainder in each case.

A) 5 B) 4 C) 11 D) 12

Solution:
4 is the greatest number which can divided all the numbers by leaving the same remainder 3.

Answer: B

Q48: Each child of the Malik's family has at least three sisters and one brother. What could be the minimum number of children in this family?

A) 5 B) 6 C) 7 D) 8

Solution:
If every sister has three sisters there must be at least four sisters and every brother has at least one brother, so there must be two brothers in the family. So there are 6 children in the family.

Answer: B

Q49: $10+110+1110+1010=10\times\boxed{?}$

What is the number indicated by question mark?

A) 280 B) 520 C) 224 D) 148

Solution:

$$=10+110+1110+1010$$
$$=10\times1+10\times11+10\times111+10\times101$$
$$=10\times(1+11+111+101)$$
$$=10\times224$$

So $10\times224=10\times\boxed{?}\Rightarrow\boxed{?}=224$

Answer: C

Q50: Seven less than three times a number is 32.

Find the number.

A) 11 B) 12 C) 13 D) 14

Solution:

$$3\times\boxed{?}-7=32$$
$$3\times\boxed{?}-7+7=32+7$$
$$3\times\boxed{?}+0=39$$
$$3\times\boxed{?}=39$$
$$\boxed{?}=\frac{39}{3}=13$$

Answer: C