Q1: Which of the following is always one of the factors of even numbers?

A) 2 B) 4 C) 8 D) 12

Solution: 2 is always one of the factors of even numbers.

Answer: A

Q2: What is the decimal form of $\frac{101}{10000}$?

A) 0.0011 B) 0.0101 C) 0.101 D) 0.011

Solution: $\frac{101}{10000} = 0.0101$

Answer: B

Q3: Which of the following fractions has a different value?

A) $\frac{3}{9}$ B) $\frac{21}{63}$ C) $\frac{24}{70}$ D) $\frac{30}{90}$

Solution:

A) $\frac{3}{9} = \frac{1}{3}$ B) $\frac{21}{63} = \frac{1}{3}$ C) $\frac{24}{70} = \frac{12}{35}$ D) $\frac{30}{90} = \frac{1}{3}$

Answer: C

Q4: Which of the following numbers is divisible by the sum of the digits of 435?

A) 48 B) 55 C) 63 D) 81

Solution: $48 \div (4+3+5) = 48 \div 12 = 4$

Answer: A

Q5: When A is subtracted from 100 and the result is divided by 4, the final result is 20. What is the value of A?

A) 36 B) 32 C) 24 D) 20

Solution:

$$\frac{100-A}{4} = 20 \Rightarrow A = 100 - 4 \times 20 = 100 - 80 = 20$$

Answer: D

Q6: What is the difference between the L.C.M. of 12 and 18 and the H.C.F. of 24 and 56?

A) 28 B) 24 C) 20 D) 16

Solution: L.C.M. of 12 and 18 is 36 , H.C.F. of 24 and 56 is 8 then the difference is 36-8=28.

Answer: A

Q7: What is the sum of the smallest and greatest fractions given below?

$$\frac{1}{4}, \frac{3}{8}, \frac{7}{12}, \frac{5}{6}$$

A) $\frac{13}{12}$ B) $\frac{23}{24}$ C) $\frac{17}{18}$ D) $\frac{25}{24}$

Solution:

$$\frac{1}{4}, \frac{3}{8}, \frac{7}{12}, \frac{5}{6} = \frac{6}{24}, \frac{9}{24}, \frac{14}{24}, \frac{20}{24} \Rightarrow \frac{6}{24} + \frac{20}{24} = \frac{26}{24} = \frac{13}{12}$$

Answer: A

Q8: The average of four numbers is 30. What will be the average if each number is increased by 3, 7, 11 and 15 respectively?

A) 33 B) 35 C) 37 D) 39

Solution: Total sum of 4 numbers will be 4x30=120 then $\frac{120+3+7+11+15}{4}=\frac{156}{4}=39$

Answer: D

Q9: If sum of any two prime numbers is a prime number, then which of the following is always one of them?

A) 2 B) 3 C) 7 D) 11

Solution: Sum of odd prime numbers is always an even number. (3+5=8 or 7+11=18) To get a prime numbers one of them must be always 2. (Like 2+3=5 or 2+5=7)

Answer: A

Q10: $\frac{0.1+0.2+0.4+0.8}{0.3}=?$

A) 3 B) 5 C) 15 D) 30

Solution: $\frac{0.1+0.2+0.4+0.8}{0.3}=\frac{1.5}{0.3}=\frac{15}{3}=5$

Answer: B

Q11: The difference between the square of 7 and the sum of the first 7 positive odd numbers is:

A) 2 B) 3 C) 4 D) 0

Solution: $7^2-(1+3+5+7+9+11+13)=49-49=0$

Answer: D

Q12: What is the L.C.M. of $3\times3\times4$, $3\times4\times4$ and $3\times4\times7$?

A) $3\times3\times7$ B) 3×7
C) $3\times4\times4\times7$ D) $3\times3\times4\times4\times7$

Solution: $3\times3\times4\times4\times7$

Answer: D

Q13: Which of the following numbers is not a prime number?

A) 1 B) 2 C) 3 D) 5

Solution: 1 is not a prime number.

Answer: A

Q14: Which of the following cannot be the sum of three positive consecutive natural numbers?

A) 81 B) 144 C) 216 D) 245

Solution: the sum of three positive consecutive natural numbers is n+n+1+n+2=3n+3=3(n+1). The sum must be multiple of 3. But 245 is not multiple of 3.

Answer: D

Q15: A student solved 45 questions of a worksheet where there are total 180 questions. What percent of the questions were not solved by the student?

A) 25% B) 45% C) 50% D) 75%

Solution: $\frac{45}{180}\times100\%=25\%$ **of the questions were solved 75% percent of them were not solved.**

Answer: D

Q16: In the following multiplication operation, what is the value of $C+D$?

$$\begin{array}{r} 1D7C \\ \times \quad 6 \\ \hline 94C8 \end{array}$$

A) 2 B) 7 C) 8 D) 13

Solution: $\left.\begin{array}{r} 1D7C \\ \times \quad 6 \\ \hline 94C8 \end{array}\right\} \Rightarrow \left.\begin{array}{r} 1573 \\ \times \quad 6 \\ \hline 9438 \end{array}\right\} \Rightarrow C+D=3+5=8$

Answer: C

Q17: In a zoo, the ratio of lions to monkeys is 5 to 8. If the total number of lions and monkeys is 65 then how many more monkeys are there than lions?

A) 10 B) 15 C) 25 D) 40

Solution: $Monkeys = 65\times\frac{8}{13}=40, Lions = 65\times\frac{5}{13}=25$

$\Rightarrow Monkeys - Lions = 40-25=15$

Answer: B

Q18: What is sum of 5% of 50% of 500 and 3% of 30% of 300?

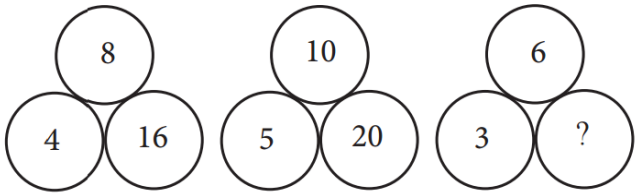
A) 15.2 B) 12.5 C) 15 D) 14.2

Solution:

$$\frac{5}{100}\times\frac{50}{100}\times 500+\frac{3}{100}\times\frac{30}{100}\times 300=12.5+2.7=15.2$$

Answer: A

Q19: What is the unknown number indicated by question mark?



A) 9 B) 12 C) 18 D) 24

Solution: $3\times 2=6\Rightarrow 6\times 2=12$

Answer: B

Q20: The total number of students in a class is 40. 8 of them passed mathematics with A grade and 4 of them passed with B grade. What is the percentage of the students who did not get A or B grade in mathematics?

A) 60% B) 70% C) 75% D) 80%

Solution:
28 students did not get A or B grade in mathematics.

$$\frac{28}{40}\times 100\% = \frac{2800}{40}\% = 70\%$$

Answer: B

Q21: A student has an average of 58 marks in nine tests. What should be his marks in the tenth test to raise the average to 61 marks?

A) 84 B) 86 C) 88 D) 90

Solution: $\frac{9\times 58+x}{10}=61\Rightarrow x=610-522=88$

Answer: C

Q22: The average of five numbers is 28. If one of the numbers is excluded, the average gets reduced by 2. What is the excluded number?

A) 36 B) 40 C) 45 D) 48

Solution: $\frac{140-x}{4}=26 \Rightarrow x=140-104=36$

Answer: A

Q23: What does the average of two numbers mean?

A) Sum of the numbers
B) Half of the sum of the number
C) Difference of the numbers
D) Double of the numbers

Solution: Half of the sum of the number

Answer: B

Q24: If 4 books cost \$28, what will be the cost of 25 books?

A) \$120 B) \$140 C) \$160 D) \$175

Solution: $\frac{28}{4}\times 25=7\times 25=\$175$

Answer: D

Q25: Round off 0.005383976 up to three decimal place.

A) 0.00538 B) 0.005
C) 0.00976 D) 0.538

Solution: 0.005

Answer: B

Q26: If $\frac{4}{x}=\frac{32}{48}$, then what will be value of x?

A) 5 B) 12 C) 6 D) 4

Solution: $\frac{4}{x}=\frac{32}{48} \Rightarrow x=\frac{4\times 48}{32}=\frac{192}{32}=6$

Answer: C

Q27: $144-\left[(-2\times 8)+12\times(-4)\right]=?$

A) 208 B) 80 C) 60 D) 56

Solution:

$144-\left[(-2\times 8)+12\times(-4)\right]=144-(-16-48)$

$\Rightarrow 144-(-64)=144+64=208$

Answer: A

Q28: $\frac{2\times\left(\frac{1}{2}-2\right)}{2-\left(\frac{3}{4}-1\right)}=?$

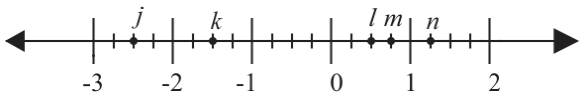
A) $-\frac{4}{3}$ B) $-\frac{2}{3}$ C) $\frac{4}{3}$ D) $\frac{2}{3}$

Solution:

$\frac{2\times\left(\frac{1}{2}-2\right)}{2-\left(\frac{3}{4}-1\right)}=\frac{2\times\left(-\frac{3}{2}\right)}{2-\left(-\frac{1}{4}\right)}=\frac{(-3)}{\frac{9}{4}}=(-3)\times\frac{4}{9}=-\frac{4}{3}$

Answer: A

Q29: On the number line below, j, k, l, m and n are shown points. What is the value of $\frac{j\times k}{l\times m\times n}$?



A) 8 B) 12 C) 16 D) 32

Solution: $\frac{j\times k}{l\times m\times n}=\frac{(-2.5)\times(-1.5)}{(0.5)\times(0.75)\times(1.25)}=8$

Answer: A

Q30: What is the sum of the greatest negative 10 integers?

A) -45 B) -50 C) -55 D) -60

Solution: $(-1)+(-2)+(-3)....+(-10)=-55$

Answer: C

Q31: $\frac{\frac{1}{8}\div\frac{1}{4}}{\frac{1}{10}\div\frac{5}{2}}=?$

A) $\frac{15}{4}$ B) $\frac{25}{4}$ C) $\frac{15}{2}$ D) $\frac{25}{2}$

Solution: $\frac{\frac{1}{8}\div\frac{1}{4}}{\frac{1}{10}\div\frac{5}{2}}=\frac{\frac{1}{8}\times 4}{\frac{1}{10}\times\frac{2}{5}}=\frac{\frac{1}{2}}{\frac{1}{25}}=\frac{1}{2}\times\frac{25}{1}=\frac{25}{2}$

Answer: D

Q32: $\frac{\square-12}{21}$ is equivalent to $\frac{1}{3}$. What is $\square$?

A) 12 B) 15 C) 17 D) 19

Solution: $\frac{\square-12}{21}=\frac{1}{3}=\frac{7}{21}\Rightarrow\square-12=7\Rightarrow\square=19$

Answer: D

Q33: Which of the following numbers can be the L.C.M. of A and B if 3 is a factor of A and 5 is a factor of B?

A) 616 B) 840 C) 560 D) 980

Solution:

Number must be divisible by both 3 and 5. Just 840 is divisible by both 3 and 5.

Answer: B

Q34: If $\frac{a}{b}=\frac{2}{3}$ and the H.C.F. of a and b is 36, then what is $a+b$?

A) 150 B) 160 C) 164 D) 180

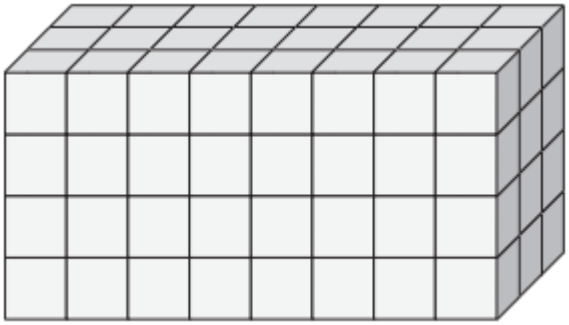
Solution:

The H.C.F. of a and b is 36, then

$a+b=2\times 36+3\times 36=72+108=180$

Answer: D

Q35: In a rectangular prism which contains 96 unit cubes, the outer surface is painted. What will be the number of remaining cubes if the painted cubes are removed?

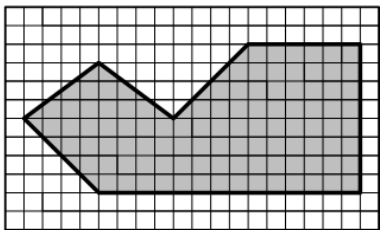


A) 6 B) 12 C) 15 D) 16

Solution: the number of remaining cubes
$1\times2\times6=12$

Answer: B

Q36: A grid is placed over a cross-sectional drawing of a molding. Each square of the grid represents one square centimeter. What is the area of shaded region of the following figure?



A) 44 B) 96 C) 108 D) 208

Solution: Total number of small shaded squares which will give total area are 108.

Answer: C

Q37: If the below figure is a magic square whose sum of all rows, columns and diagonals are the same number, what are the values of K, L, M, N, S and T?

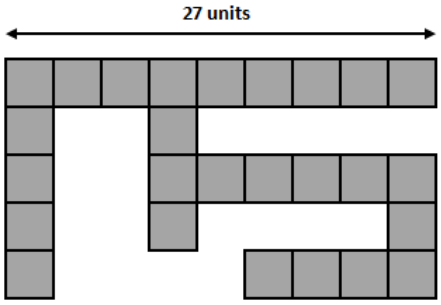
K	L	7
13	37	M
N	S	T

	K	L	M	N	S	T
A)	73	31	43	1	67	61
B)	31	73	61	67	1	43
C)	43	67	1	61	73	31
D)	31	61	43	1	73	67

Solution:

Answer: B

Q38: What is the perimeter of the shaded figure below?



A) 159 B) 162 C) 106 D) 195

Solution: $3\times54=162$

Answer: B

Q39: A bus is travelling at an average speed of 150 km/h. If the bus left at 10:00 a.m. from station A then arrival time of the bus at station B which is 120 km away will be:

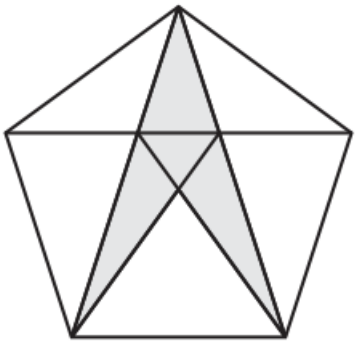
A) 10:40 a.m. B) 10:48 a.m.

C) 11:08 a.m. D) 11:00 a.m.

Solution: $time = \frac{120}{150} = 0.8hrs \quad or \quad 48\,\text{min}$
answer will be 10 : 48 a.m.

Answer: B

Q40: What is the ratio of the number of shaded triangles to the number of all triangles inside pentagon?



A) 8/22 B) 8/21 C) 8/19 D) 8/23

Solution:

Answer: A

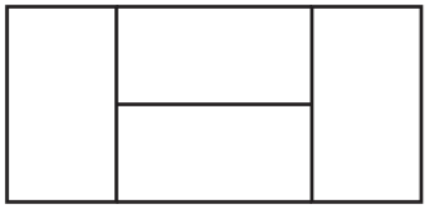
Q41: The area of a rectangle is $144\,\text{cm}^2$. How many congruent squares have the same area in total if a side of a square is 4 cm?

A) 8 B) 9 C) 10 D) 12

Solution: $\frac{144}{4\times 4} = \frac{144}{16} = 9$

Answer: B

Q42: The following figure is made by 4 congruent rectangles. What is the area of the shape if the longer side of each rectangle is 8 cm?



A) 48 B) 96 C) 128 D) 512

Solution: $8\times 16 = 128$

Answer: C

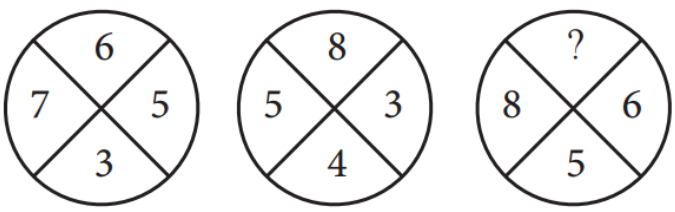
Q43: A taxi covers first 80 km in 2.5 hours, next 150 km in 3 hours and last 180 km in 4.5 hours. What is the average speed of the taxi?

A) 41 km/h B) 42.5 km/h
C) 42 km/h D) 43 km/h

Solution: $\text{average speed} = \frac{80+150+180}{2.5+3+4.5} = \frac{410}{10} = 41$

Answer: A

Q44: What is the unknown number indicated by question mark in the number pattern below?



A) 8 B) 9 C) 10 D) 12

Solution: $(8-6)\times 5 = 2\times 5 = 10$

Answer: C

Q45: Which number comes before 4 in the number pattern given below?

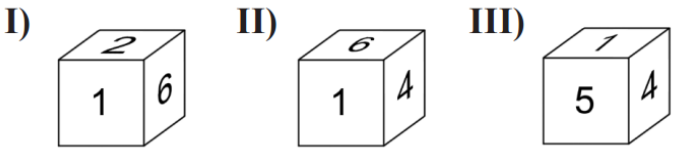
? 4 11 8 15 12 19 16 23

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

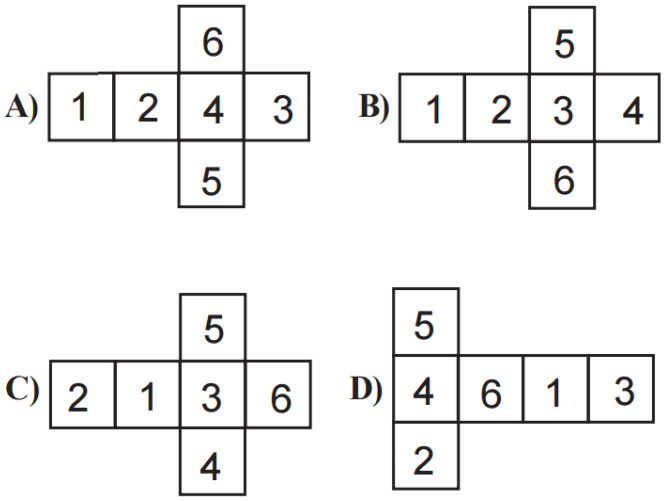
Solution: $11-4=7$

Answer: A

Q46: A cube is displayed from different perspectives as it is shown below:



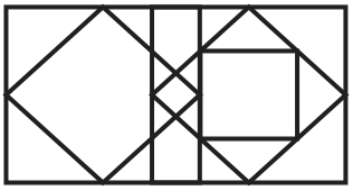
Which of the following is net of the cube given above?



Solution:

Answer: B

Q47: How many quadrilaterals are there in the figure below?

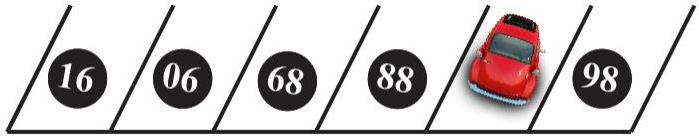


A) 16 B) 18 C) 20 D) 22

Solution:

Answer: D

Q48: The following figure represents a parking area and the area for each car is marked by numbers? What is the parking number of the car which is parked?

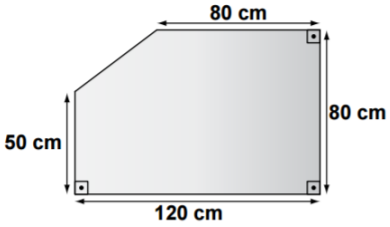


A) 87 B) 89 C) 68 D) 78

Solution: Reverse the figure.
Numbers will be 86, 87, 88, 89, 90, 91

Answer: A

Q49: What is the area of the following figure in cm^2?

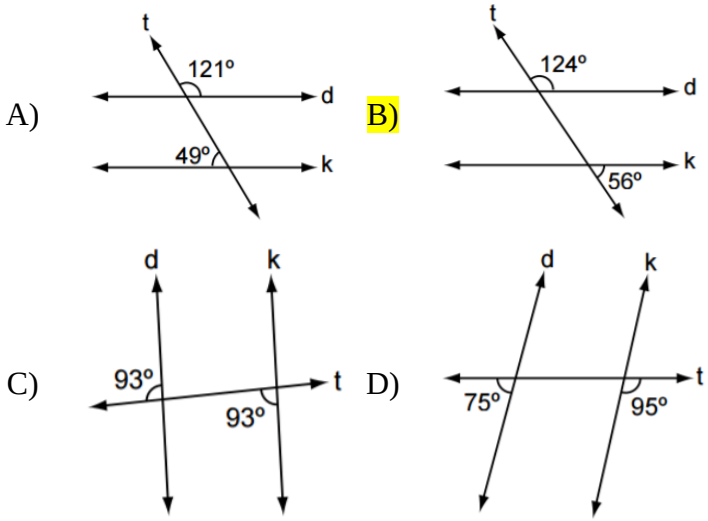


A) 9000 B) 9600 C) 11000 D) 11600

Solution: $Area = 50\times120+\dfrac{30\times(80+120)}{2}=9000$

Answer: A

Q50: In which of the following figures, the lines *d* and *k* are parallel?



Solution: $124+56=180$

Answer: B