



International
EN-LINE **M**ath **Challenge**

Only challengers can make a change!

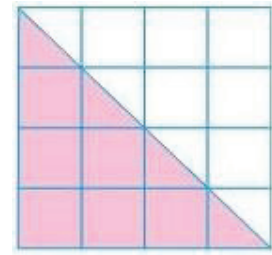
Past Papers 2022

Category 2

Category-2 IMC 2022

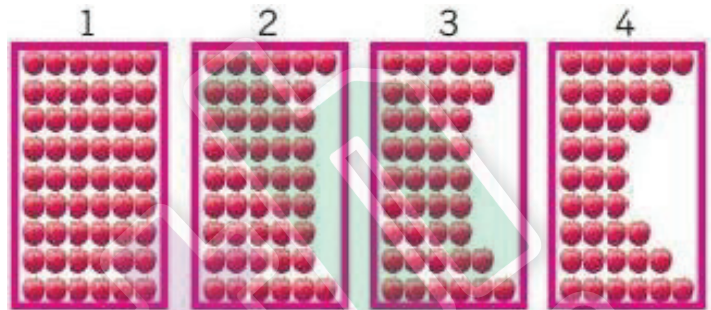
1. Find the area of the shaded triangle, in square units.

- A) 8
- B) 6
- C) 6.5
- D) 7.5



2. The number of apples in each box follows a rule. How many apples are there in the fifth box?

- A) 40
- B) 37
- C) 38
- D) 1



3. Find the sum of missing digits.

- A) 21
- B) 28
- C) 14
- D) 22

$$\begin{array}{r}
 \square 79 \\
 \square 546 \\
 + \quad \square \square \\
 \hline
 9302
 \end{array}$$

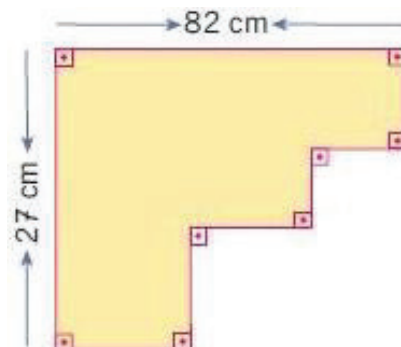
4. Find the sum of the digits of multiplicand.

- A) 4
- B) 9
- C) 7
- D) 8

$$\begin{array}{r}
 \dots \\
 \times \quad 24 \\
 \hline
 \dots \\
 + \dots \\
 \hline
 6024
 \end{array}$$

5. Find the perimeter of given figure.

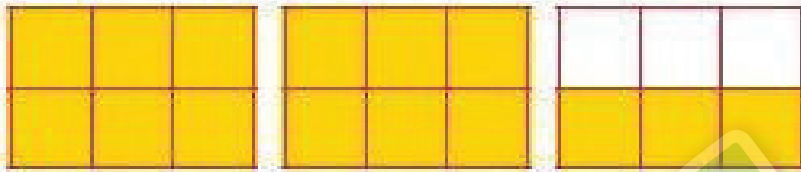
- A) 2214
- B) 1107
- C) 218
- D) 109



6. How many pages can Tito read in 12 minutes if he can read 135 pages in an hour and a half?

- A) 18 B) 15 C) 13.5 D) 27

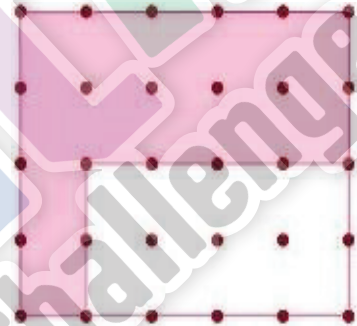
7. Which fraction does not the figure show?



- A) $\frac{5}{2}$ B) $12\frac{1}{3}$ C) $\frac{15}{6}$ D) $2\frac{3}{6}$

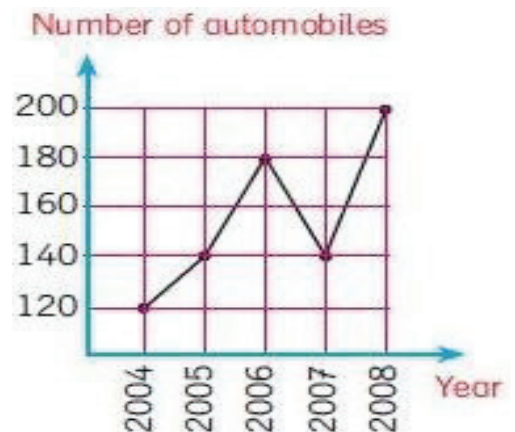
8. What percentage of the figure is shaded?

- A) 80% B) 8%
C) 12% D) 60%



9. The line graph shows the number of automobiles sold by a company between the years 2004 and 2008. Find the mean of the number of automobiles sold.

- A) 156 B) 160
C) 120 D) 2006



10. A car travels 20 km on 2 liters of gasoline. How many liters of gasoline are needed to drive 35 km?

- A) 3.5 B) 3 C) 1.5 D) 0.5

11. Calculate $75 \div 5 \times 5 \div 3$.

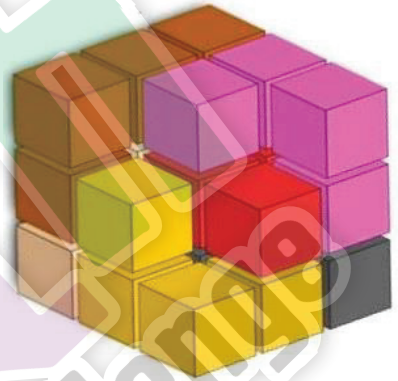
- A) 75 B) 72 C) 0 D) 50

12. If 20% of a number is 12, what is 40% of that number?

- A) 40 B) 18 C) 20 D) 24

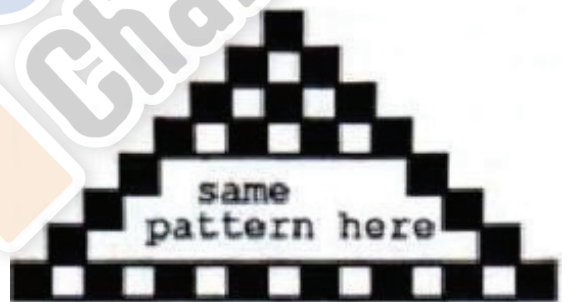
13. How many cubes are needed to complete a cube?

- A) 27 B) 23
C) 6 D) 4



14. According to the following figure, what is the difference between the numbers of black and white squares?

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



15. Bhuripat was going to multiply 0.06 by 3.56, but he forgot to input the decimal points and the calculator shows the result as 2136. What would the result be if he input the numbers correctly?

- A) 0.2136 B) 2.136 C) 21.36 D) 213.6

16. A and B are whole numbers where $A \times B = 32$. What is the smallest possible value of $A + B$?

- A) 12 B) 18 C) 33 D) 32

17. On a map, a 9-centimeter length represents 72 kilometers in real life. How many kilometers does a 15-centimeter length represent?

- A) 150 km B) 110 km C) 120 km D) 180 km

18. In a school, there are five periods of lessons. After each 45 minutes lesson period, there is a 10 minutes break. If the first lesson starts at 08:35, what time will the school be closed?

- A) 13:00 B) 13:30 C) 14:00 D) 15:00

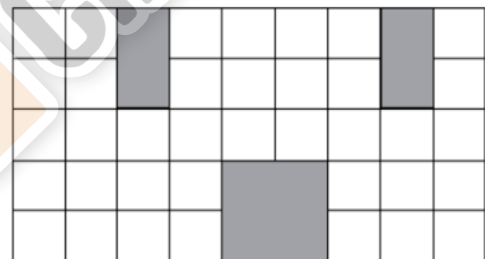
19. Each of the small cubes in the following figure has a dimension of 1cm x 1cm x 1cm. Find the total surface area of the figure.

- A) 119 cm² B) 118 cm²
 C) 117 cm² D) 220 cm²



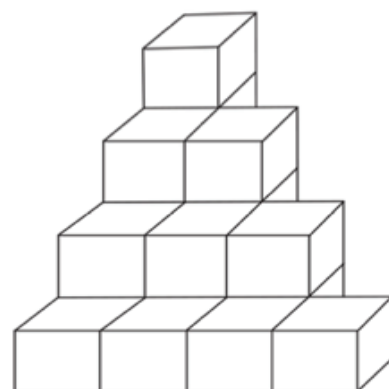
20. The cost of painting each unit square is 5 USD. What is the cost of the following painting, given that the shaded area is the painted part?

- A) 20 USD B) 30 USD
 C) 40 USD D) 50 USD



21. How many small cubes are there in the following figure?

- A) 17 B) 18
 C) 19 D) 20

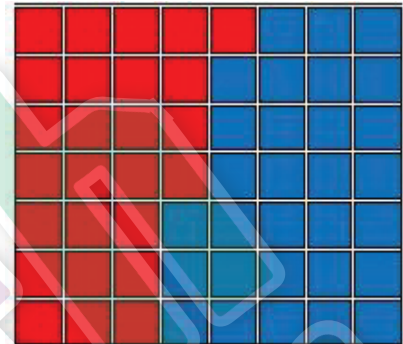


22. Given $4(\triangle + 5) = \square \times 3 + 2 \times 10$. If \triangle and \square are single digit numbers. Find the greatest value of $\triangle + \square$.

- A) 7 B) 8 C) 12 D) 14

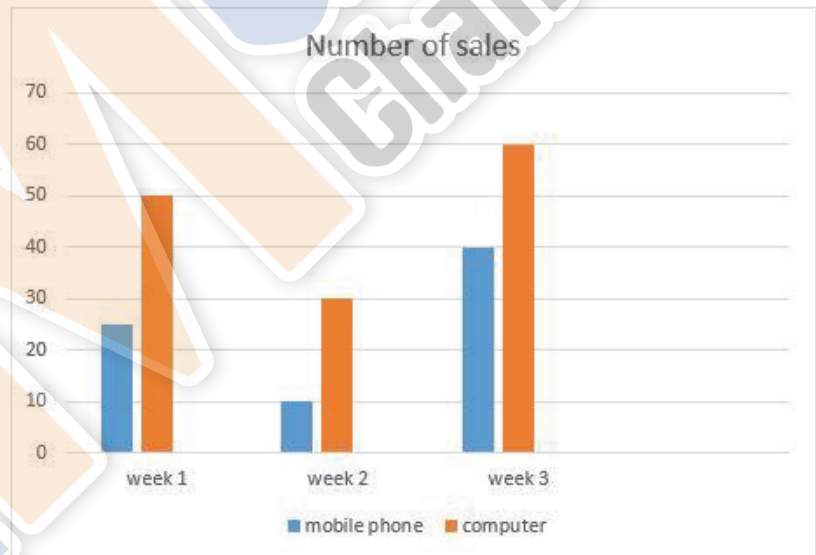
23. According to the figure given below, what is the ratio of red squares to blue squares?

- A) 15:14 B) 14:15
C) 13:15 D) 15:13



24. According to the following chart, find the difference between the total number of computers and mobile phones.

- A) 65 B) 75
C) 60 D) 50



25. The largest 5-digit odd number written using the numerals 6, 9, 0, 2 and 3 is \star and the smallest 5-digit even number is \heartsuit . (Without repeating the digits). Find the $\star - \heartsuit$.

- A) 75807 B) 75933 C) 75951 D) 93834

26. If $[(19 + 5) \times 2 - 8] \div 4 = \text{☀}$. Find the value of ☀ .

- A) 0 B) 10 C) 29 D) 46

27. Jan has a total of 36 kg of walnuts. He sold 50% of his walnuts in the market and 25% online. How much money did he earn in total?

- A) 468 USD B) 234 USD
C) 390 USD D) 351 USD



28. If $\frac{4}{7} > \square > \frac{4}{9}$, which of the following can replace the \square ?

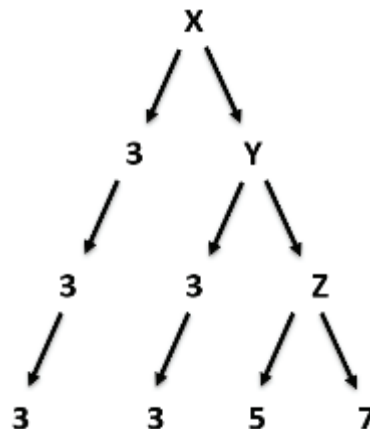
- A) $\frac{2}{3}$ B) $\frac{1}{8}$ C) $\frac{1}{2}$ D) $\frac{5}{7}$

29. How many numbers between 71 and 182 are multiple of 16?

- A) 7 B) 8 C) 12 D) 13

30. What is X according to the multiplier tree given below?

- A) 9 B) 39
C) 105 D) 315

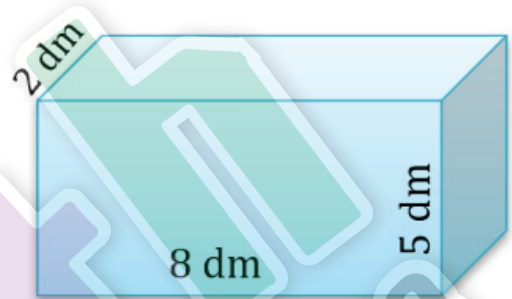


31. Tom and Jerry share the rent of the apartment in a ratio of 5:3. The electricity bill is 1880 USD. How much Tom pays?

- A) 1175 USD B) 940 USD C) 880 USD D) 705 USD

32. The side lengths of a rectangle water tank are 8dm, 5dm and 2dm. How many litres of water can it hold? ($1\text{dm}^3=1\text{litre}$)

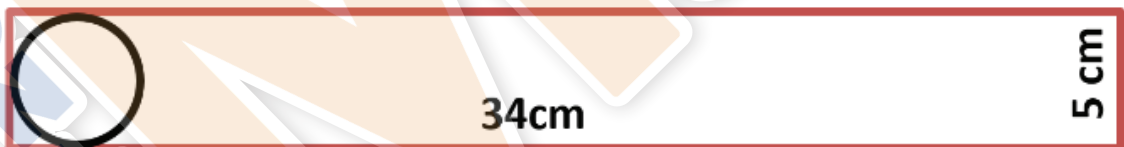
- A) 40 liters B) 60 liters
C) 80 liters D) 100 liters



33. How many two-digit numbers are divisible by 4?

- A) 21 B) 22 C) 23 D) 24

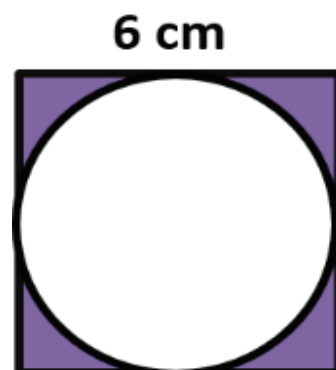
34. How many of the largest-size circles can be placed in the following rectangle?



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

35. Find the area of the shaded region. ($\pi = 3$)

- A) 18 B) 12
C) 9 D) 6



36. What letter is in the 30th position in the pattern below?

I M C O I M C O I M C O . . .

- A) I B) M C) C D) O

37. According to the following multiplication table, what is the **b – a**?

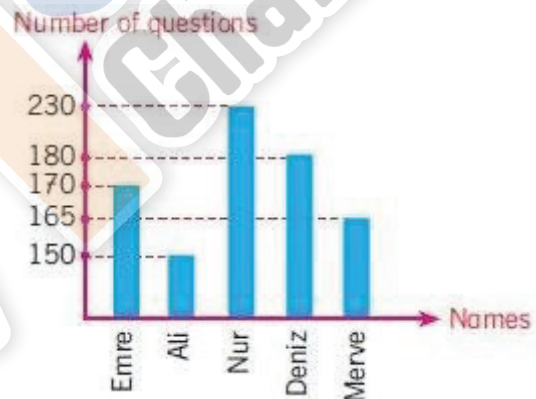
| | | | |
|----------|--|-----------|-----------|
| x | | 7 | 9 |
| | | | |
| | | b | 45 |
| a | | 56 | 72 |
| | | | |

- A) 27 B) -3
C) 13 D) -13

38. If twice of a number is 2 less than 4 multiplied by 3, find the number.

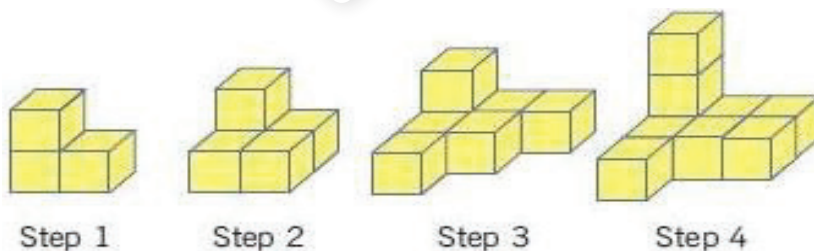
- A) 3 B) 5 C) 11 D) 15

39. The graph below shows the number of questions that five students answered correctly in an exam. Find the arithmetic mean of the five students' scores.



- A) 449 B) 169
C) 179 D) 269

40. The number of cubes in each cube structure below is determined by a rule. How many cubes will there be in the seventh structure?



- A) 11 B) 13 C) 12 D) 15

Answers:

1. A) 8 2. C) 38 3. B) 28 4. D) 8 5. C) 218 6. A) 18 7. B) $12\frac{1}{3}$ 8. D) 60 %
9. A) 156 10. A) 3.5 11. B) 72 12. D) 24 13. D) 4 14. A) 8 15. A) 0.2136
16. A) 12 17. C) 120 km 18. A) 13:00 19. B) 118 cm^2 20. C) 40 USD 21. D) 20
22. D) 14 23. C) 13:15 24. A) 65 25. A) 75807 26. B) 10 27. D) 351 USD
28. C) $\frac{1}{2}$ 29. A) 7 30. D) 315 31. A) 1175 USD 32. C) 80 liters 33. B) 22
34. D) 6 35. C) 9 36. B) M 37. A) 27 38. B) 5 39. C) 179 40. D) 15

