

01

What is the value of  $102 + 103 + 104 + 105 + 106$ ?

- A) 515
- B) 520
- C) 525
- D) 530

02

Ashley has 59 dollars in her money box and takes out 8 dollars each day.

How much money remains after 6 days?

- A) 11
- B) 10
- C) 9
- D) 8

03

| Cows | Sheep | Goats | Chickens |
|------|-------|-------|----------|
| 2570 | 4100  | ■     | ▲        |

The table shows the numbers of animals on a farm.

- The number of goats is 850 less than the number of cows.
- The number of sheep is 2150 less than the number of chickens.

What is the total number of animals on the farm?

- A) 14 620
- B) 14 630
- C) 14 640
- D) 14 650

04

Between which two integers does the improper fraction  $\frac{41}{13}$  lie?

- A) 2 and 3
- B) 3 and 4
- C) 4 and 5
- D) 5 and 6

05

In a cafeteria, after selling 5 sandwiches, there are 95 dollars in the drawer. After selling 25 sandwiches in total, there are 275 dollars.

How much money was in the drawer before selling any sandwiches?

- A) 50
- B) 55
- C) 60
- D) 65

06

Which number should replace  $\star$  in the equation  $4 \cdot 21 \cdot 15 = 10 \cdot \star \cdot 9$  to make it correct?

- A) 12
- B) 14
- C) 16
- D) 18

07

Emma wants to know the weight of a coin to within 0.2 g. Her weighing scale is only accurate to within 5 g.

What is the smallest number of identical coins Emma should weigh together to achieve this accuracy?

- A) 10
- B) 20
- C) 25
- D) 30

08

Which option lists the first five terms of the pattern that starts at 8 and increases by 7 each time?

- A) 8, 14, 21, 28, 35
- B) 8, 14, 22, 29, 36
- C) 8, 15, 22, 28, 35
- D) 8, 15, 22, 29, 36

09

A cube has a surface area of  $486 \text{ cm}^2$ . What is its volume?

- A)  $343 \text{ cm}^3$
- B)  $512 \text{ cm}^3$
- C)  $729 \text{ cm}^3$
- D)  $900 \text{ cm}^3$

10

The exam scores of a group of students are given below:  
50, 50, 60, 60, 60, 100, 100, 80, 80, 80, 60, 60, 60, 80  
Accordingly, what is the mode of this data set?

- A) 50
- B) 60
- C) 80
- D) 100

11

$$\begin{array}{r} \text{●}43 \\ - \text{●}2\text{●}6 \\ \hline 117 \end{array}$$

Sophia subtracted two 3-digit numbers. Then she hid two cells. What is the sum of the two digits in the hidden cells?

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

12

Three siblings aged 5, 8 and 9 share some money in proportion to their ages. If the 8-year-old receives \$32, what is the total amount shared?

- A) \$84
- B) \$88
- C) \$92
- D) \$96

13

| Flour (cups) | Sugar (cups) |
|--------------|--------------|
| 6            | 4            |
| 12           | 8            |
| a            | 10           |
| 24           | b            |

The table above shows flour–sugar ratio in a recipe.  
What is  $a + b$ ?

- A) 31
- B) 32
- C) 33
- D) 34

14



Nadia finds an old calendar page showing 'September 1, 2013, Sunday.' She notices that her niece was born in the same year and same month on the 20th.

What day of the week was her niece born?

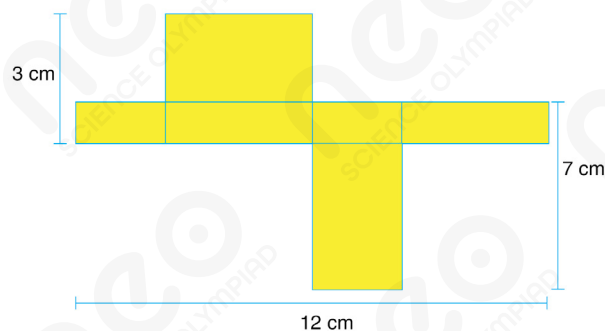
- A) Tuesday
- B) Wednesday
- C) Thursday
- D) Friday

15

Which of the following words has only horizontal symmetry but not vertical symmetry?

- A) IHI
- B) ZOZ
- C) OXO
- D) EHE

16



The diagram shows a net of a rectangular box with some lengths given.

What is the volume of the box?

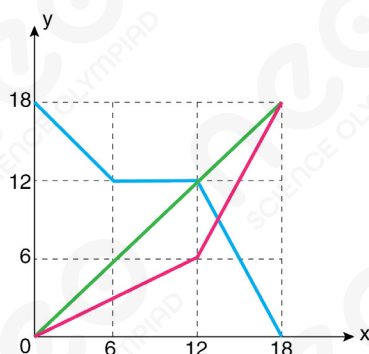
- A)  $10 \text{ cm}^3$
- B)  $12 \text{ cm}^3$
- C)  $15 \text{ cm}^3$
- D)  $18 \text{ cm}^3$

17

Given the polynomial  $Q(x)=x^3+2x^2-x+5$ , what is the remainder when  $Q(x-4)$  is divided by  $(x-1)$ ?

- A) 1      B) -1      C) 7      D) -5

18



In the Cartesian coordinate plane, three different functions defined on the interval  $[0, 18]$  are drawn in blue, green, and red.

One of these graphs represents the function  $y = f(x)$ .

It is known that  $(f \circ f)(14) = 5$ .

Accordingly, what is the value of  $f(6) + f(16)$ ?

- A) 12  
B) 17  
C) 18  
D) 20

19

| Days             | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
|------------------|-----|-----|-----|-----|-----|-----|-----|
| Questions solved | 60  | 80  | 40  | 100 | 140 | 60  | 150 |

The table above shows the number of Mathematics questions a student solved on different days throughout the week.

Accordingly, what is the arithmetic mean of this data set?

- A) 75  
B) 80  
C) 85  
D) 90

20

Find the centre of the ellipse  
 $9x^2 + 16y^2 + 36x - 64y - 44 = 0$

- A) (2, 2)  
B) (-2, 2)  
C) (2, -2)  
D) (-2, -2)

21

$$\sqrt{2} + \sqrt{8} + \sqrt{18} + \sqrt{32} + \sqrt{50} + \sqrt{72} = ?$$

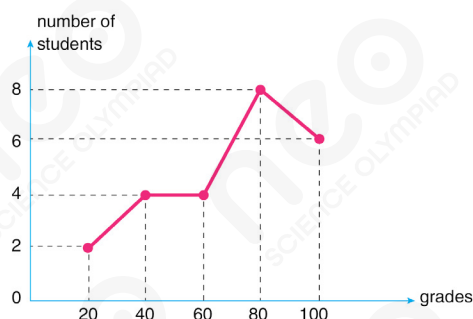
- A)  $\sqrt{182}$       B)  $20\sqrt{2}$       C)  $21\sqrt{2}$       D)  $22\sqrt{2}$

22

Given the polynomials  $P(x) = x^5 + x^4 - x^2 + 2$  and  $Q(x) = x^5 + 3x^4 - 4x^2 + 2x + 12$ , what is the degree of the polynomial  $(P(x) \cdot Q(x))$ ?

- A) 9      B) 10      C) 11      D) 12

23



According to the line graph above, which of the following statements are correct?

- I. The number of students in the class is 24.  
II. The average score is 70.  
III. Students who scored 60 are below the class average.

- A) I and II  
B) II and III  
C) I and III  
D) I, II, and III

24

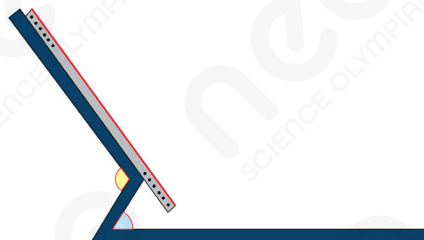
The first term of an arithmetic sequence is  $\frac{-1}{2}$ . The sum of the first six terms is 54 more than the sum of the first eight terms.

Which of the following statements about the common difference of the sequence are true?

- I. It is negative.  
II. It is less than 1.  
III. It is an integer.

- A) I and II  
B) II and III  
C) I and III  
D) I, II, and III

25



The side perspective view of a tablet platform and a rectangular prism-shaped tablet fixed to this platform is shown above.

Among the three black structural parts that form the platform, the yellow angle formed at one intersection is four times the blue angle formed at another intersection.

It is also given that the angle between a red line, which represents one edge of the tablet, and a green line, which represents the edge of one of the platform pieces, is  $114^\circ$ .

Accordingly, which of the following could be one of the angles formed between the platform pieces?

- A)  $62^\circ$       B)  $74^\circ$       C)  $82^\circ$       D)  $88^\circ$

**Answer Key**

|    |   |
|----|---|
| 1  | B |
| 2  | A |
| 3  | C |
| 4  | B |
| 5  | A |
| 6  | B |
| 7  | C |
| 8  | D |
| 9  | C |
| 10 | B |
| 11 | A |
| 12 | B |
| 13 | A |
| 14 | D |
| 15 | D |
| 16 | A |
| 17 | B |
| 18 | B |
| 19 | D |
| 20 | B |
| 21 | C |
| 22 | B |
| 23 | D |
| 24 | A |
| 25 | D |