

1.  $101 - 89 + 39 = 98 - \underline{\quad} + 42$

- A. 79
- B. 83
- C. 88
- D. 89
- E. 91

2.  $31 + 35 + 39 - 24 - 28 - 32 = 3 \times \underline{\quad}$

- A. 5
- B. 7
- C. 9
- D. 11
- E. 12

3. Kelly has 80 beads. If she puts as many of these beads as possible in 9 boxes, how many beads will be left over?

- A. 1
- B. 2
- C. 4
- D. 7
- E. 8

4. The population of rabbits doubles in a forest every year. If there were 10 rabbits in the forest at the beginning of 2009, how many rabbits will be there at the end of 2017?

- A. 80
- B. 90
- C. 640
- D. 2560
- E. 5120

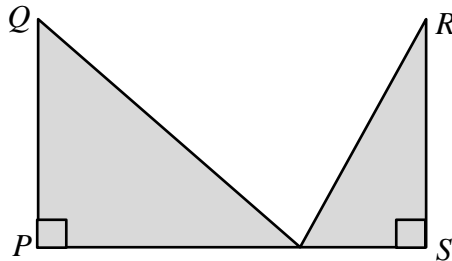
5. Which of the following can be the sum of three consecutive numbers?
- A. 89
  - B. 91
  - C. 93
  - D. 95
  - E. 97
6. Victor, William, Xavier, Yale and Zach went to a watch a musical. William and Xavier are not next to each other. Victor and Zach are not sitting in the end seats (first or last), but also not sitting next to each other. There is one person between Yale and Xavier, and one person between Yale and Zach. Who is sitting in the middle seat?
- A. Zach
  - B. Yale
  - C. Xavier
  - D. William
  - E. Victor
7. Zara, the detective, uses a coded language to send messages to her colleagues. In Zara's code, the code ORK is decoded as RUN and the code EFAB is decoded as HIDE. What will be the code for the word FLEE?
- A. IOHH
  - B. IPHH
  - C. CIBB
  - D. DASH
  - E. STOP

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Critical Thinking Math

8. In the below picture,  $PS = 9$ , and  $PQ = RS = 4$ . What is the area of the shaded region?



- A. 36
- B. 26
- C. 18
- D. 13
- E. 11

9. Which number below is not a factor of 2016?

- A. 3
- B. 8
- C. 9
- D. 11
- E. 21

10. In a function hall, there are 24 rows of seats. Each row has 14 seats. If  $\frac{13}{21}$  of the seats are occupied, how many seats are not occupied?

- A. 128
- B. 140
- C. 164
- D. 208
- E. 336

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**Critical Thinking Math**

11. Jessica is holding a book exactly in its middle. She found that the sum of the two page numbers shown is 177. If all the pages of the book are numbered from the beginning to the end, starting with 1, without any missing page numbers, how many pages does Jessica's book have?
- A. 176  
B. 177  
C. 352  
D. 353  
E. 354
12. Sergey is planting trees in his backyard in a line at equal distance from each other. He planted 8 trees. The distance between the first and the fourth tree is 24 feet. What is the distance between the first and the last tree?
- A. 48  
B. 56  
C. 60  
D. 64  
E. 72
13.  $(12 \times 13 \times 14 \times 15) \div (2 \times 3 \times 4 \times 5) =$
- A.  $6 \times 7 \times 8 \times 9$   
B.  $5 \times 6 \times 7 \times 13$   
C.  $13 \times 14 \times 5$   
D.  $21 \times 13$   
E.  $35 \times 13$

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**Critical Thinking Math**

14. How many whole numbers have more than 1 digit, but fewer than 5 digits?
- A. 9988
  - B. 9989
  - C. 9990
  - D. 9991
  - E. 9999
15. If the pattern *MATHUSMATHUSMATHUS...* continues (repetition of the word *MATHUS*), what would be the 2017<sup>th</sup> letter?
- A. M
  - B. A
  - C. T
  - D. H
  - E. U
16. The students in a fourth grade class of 20 voted on whether they should go to the Zoo or Aquarium. 7 students voted for Aquarium and 11 students voted for the Zoo. What is the greatest number of students that voted for neither?
- A. 13
  - B. 2
  - C. 0
  - D. 4
  - E. 9

17. What is the fraction half-way between  $\frac{1}{7}$  and  $\frac{1}{3}$  ?

- A.  $\frac{1}{5}$
- B.  $\frac{4}{21}$
- C.  $\frac{5}{21}$
- D.  $\frac{10}{21}$
- E.  $\frac{5}{42}$

18. A student has mistakenly multiplied a number by 10 instead of dividing it by 10 while solving a problem. If the incorrect answer he got was 5, what is the correct answer to the problem?

- A. 500
- B. 50
- C. 5
- D. 0.5
- E. 0.05

19. At 12 O'clock, both hours and minutes hands of a clock are on 12. What will be the angle between the hours hand and minutes hand at 12:40?

- A. 140
- B. 240
- C. 260
- D. 200
- E. 165

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20. Each letter  $x$ ,  $y$ , and  $z$  in the addition below stand for different digits. What is the value of  $y$ ?

$$\begin{array}{r} \phantom{+} \phantom{z} z \\ + \phantom{z} x y \\ \hline x x x \end{array}$$

- A. 1
- B. 2
- C. 5
- D. 8
- E. 9

For any questions, please reach us at [support@mathusacademy.com](mailto:support@mathusacademy.com) or 2098-MATHUS (209.862.8487)