2025-2026 Junior Mathematical Olympiad

Round One Grade 4 SOLUTIONS - 1:00pm

1. **Soln**: **(D)** Candle D was the first to stop since it had the least amount of burnt out candle (It is the tallest of the unburnt)

2. **Soln**: **(E)** The result is largest when the third of the numbers is 0. This gives a total of $6 + 2 + 2 = 10$.

3. **Soln**: **(D)** Sam is $1 + 6 \times 10 = 61$ years old.

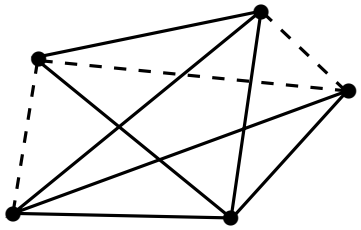
4. **Soln**: **(C)** The number of human feet is $25 \times 2 = 50$ and the number of pig feet is $60 \times 4 = 240$. The total number of feet is therefore $50 + 240 = 290$.

5. **Soln**: **(C)** Each daughter will receive $\frac{36}{4} = 9$ apples.

6. **Soln**: **(C)** Ordering the ages youngest to oldest, we have $V, J, \square, L, A$. This make Sara the third youngest. $\square$ represents S and she is 9 years old.

7. **Soln**: **(E)** If one die shows a 6 then the sum of the number of dots shown on the other 2 dice is 2. This is not possible as each die shows a different number.

8. **Soln**: **(D)** The completed map is



9. **Soln**: **(A)** The product is $27a = 8b$. Since 27 is a factor of 81, $b = 1$ and this gives $a = 3$. The value of $a + b = 4$.

10. **Soln**: **(C)** Because $10 \times \square$ ends with 0, the product $\square \times \square$ ends with a 5 and so only 5 is plausible. Now $5 \times 5 + 10 \times 5 = 75$ and so 5 works.

11. **Soln**: **(D)** The smallest two-digit integer is 10 and the largest three-digit integer is 999. The sum is $10 + 999 = 1009$.

12. **Soln**: **(B)** From the information, the train started at 17:24 and arrived at 18:44. The length of the train ride was $18{:}44 - 17{:}24 = 1{:}20$.

13. **Soln**: **(B)** The date is earliest if the 1st of June is a Sunday. In this case, the third Sunday will be on the $1 + 7 + 7 = 15$th.

14. **Soln**: **(E)** The value of $2^2 + 0^2 + 2^2 + 6^2$ is $4 + 0 + 4 + 36 = 44$.

15. **Soln**: **(A)** $\frac{3333+1111}{1111+1111} = \frac{4444}{2222} = \frac{4(1111)}{2(1111)} = \frac{4}{2} = 2$.

16. **Soln**: **(E)** Based on step 1, a complete rotation will be made after every 6 steps. Two complete rotations correspond to 12 steps.

17. **Soln**: **(A)** 21 seconds is 39 seconds away from a minute and 59 minutes is 1 minute away from an hour. Julie therefore finished 39 seconds + 1 minute away from the medalling mark. In seconds, this is $39 + 60 = 99$ seconds.

18. **Soln**: **(B)** The sum is smallest when the tens digits are least (but not zero). The tens digits to be used are $1, 2$ and 3. This produces a sum of 60. The units digits are therefore $0, 4, 5$ resulting in a further 9. The smallest sum is therefore $60 + 9 = 69$.

19. **Soln**: **(B)** The number 2 appears twice in every occurrence of $2, 0, 2, 6$. If the list was 32 numbers then $2, 0, 2, 6$ appears 8 times ending with a 6. The number 2 appears $8 \times 2 = 16$ times. The next (33rd) is a 2 which means that the new list contains 17 twos.

20. **Soln**: **(E)** $\$5,000,000$ is five million dollars and the total is $12 \times \$5,000,000 = \$60,000,000$.

21. **Soln**: **(C)** In 60 minutes she took her second pill and in 120 minutes she took her 3rd pill. Now 60 minutes is 1 hour and so she took her 3rd pill after 2 hours. Adding this time to 7:15, we get 9:15.

22. **Soln**: **(A)** Using the grid of numbers $\begin{array}{|c|c|}\hline a & b \\ \hline c & d \\ \hline \end{array}$, $a + b = 7$, $b + d = 8$ and $c + d = 5$. The total is $a + b + c + d = 7 + 5 = 12$ and since $b + d = 8$, the value of $a + c$ is $12 - 8 = 4$.

23. **Soln**: **(B)** There are 3×6 triangles and 6 are shaded. The fraction is $\frac{6}{18} = \frac{1}{3}$.

24. **Soln**: **(D)** Consider colouring the triangle and then the rectangle. There are two ways for the semi-circle and three ways for the rectangle. The multiplication rule says the total number of ways of coloring the figure is $2 \times 3 = 6$. The six pairs of colours are $(y, b), (y, g), (y, p), (r, b), (r, g), (r, p)$.

25. **Soln**: **(C)** $1\frac{1}{2} = \frac{3}{2} = 1 \times \frac{3}{2}$. The amount of water to be used will be $1\frac{1}{2} \times \frac{3}{2} = \frac{3}{2} \times \frac{3}{2} = \frac{9}{4} = 2\frac{1}{4}$.