

2022 Chiles Mini Mu Elementary Round 1

Solutions

Chiles Mini Mu

December 2022

1. The circle has area equal to $\pi r^2 = 5^2 * \pi = 25\pi$, the triangle has area equal to $\frac{bh}{2} = \frac{10*10}{2} = 50$, and the square has area equal to $s^2 = 10^2 = 100$. Since $25\pi < 100$ because $\pi < 4$, the square has the greatest area. **C**
2. $\frac{81}{7} = \frac{77+4}{7} = 11 + \frac{4}{7}$, thus the remainder is 4, **C**.
3. Notice that 32 divides 32, 96, and 160. Therefore the answer is 32, **E**.
4. To find the LCM of these three numbers, it is most efficient to count multiples of the largest number since these three numbers share a large amount of factors. 160 is not divisible by 96, 320 is still not divisible by 96, but 480 is divisible by 96 and 32. **D**
5. Simplifying with PEMDAS yields $4 * 4 + 4 \div 4 - 4 = 16 + 4 \div 4 - 4 = 16 + 1 - 4 = 13$, **B**.
6. Let Wesley's ship start at 0, and let forward movement be addition and backward movement be subtraction. The problem is therefore $0 + 2 + 4 - 10 + 3 = -1$. Thus the displacement is 1 meter as the displacement is equal to the distance between the original and final position. **A**
7. A hexagon has 6 sides, **C**.
8. The area of a circle is given by πr^2 , where r is its radius. Therefore the area of a circle with a radius of 9 yards is equal to $9^2 * \pi = 81\pi$ yd², **E**.
9. After Wesley uses two-thirds of half of Yimo's fuel, he has one-sixth of Yimo's fuel left ($\frac{1}{2} - \frac{1}{2} * \frac{2}{3} = \frac{1}{6}$) which is equal to 2 ounces of fuel. If Yimo has also used half of his remaining half of the fuel, then he has one-fourth of his fuel left ($\frac{1}{2} - \frac{1}{2} * \frac{1}{2} = \frac{1}{4}$). Since $\frac{1}{6}$ of Yimo's fuel tank is 2 ounces, then at full capacity it can hold 12 ounces. Since Yimo gets 2 ounces from Wesley and has 3 ounces originally ($\frac{1}{4} * 12 = 3$), so he has 5 ounces now. **D**.
10. 1 is neither prime nor composite, **A**.

11. Nelson's sequence is an arithmetic sequence with a constant different of 3. Since the fifth term is 13, then the sixth term is $13 + 3 = 16$, **A**.
12. $33 \div 3 = 11$ groups, **A**.
13. A rectangle can have a different length and width, **D**.
14. Since the path of Wesley and Nelson's ships are lines that never intersect, by definition they are parallel lines, **D**.
15. By PEMDAS, $99 \div ((23 + 13)) \div (2 * 6) = 99 \div (36 \div 12) = 99 \div 3 = 33$, **D**.
16. The circumference of a circle can be given as πd , where d is the diameter of the circle. Thus the diameter of the circle can fit on its circumference π times, **A**.
17. The area of a circle can be given by $A = \pi \frac{d^2}{4} = \pi * 16 = 16\pi \text{ in}^2$, **C**.
18. The area of a circle can be given by $A = \pi r^2 = \pi * 20^2 = 400\pi \text{ m}^2$, **A**.
19. Summing up the 15 number of solar systems and dividing by 15 by the definition of the mean of 15 numbers, one gets that the sum is 660 and dividing by 15 gives $660 \div 15 = 44$, **B**.
20. A five-pointed star, as shown in the question, has 10 sides, 2 for each of its points. Since each side is 5 in, then its perimeter is $5 * 10 = 50$ in, **B**.
21. If the area of a circle is $25\pi \text{ mi}^2$, then the radius is equal to 5 mi as $5^2 = 25$, **A**.
22. If Arib ate one-third of the 75 ice-creams, then he ate 25 ice-creams. There are then $75 - 25 = 50$ ice-creams left, **B**.
23. The area of the triangle is given by $\frac{bh}{2} = \frac{7*12}{2} = 42 \text{ ft}^2$, **D**.
24. The area of the rectangle is given by $lw = 32 * 24 = 768 \text{ in}^2$, **B**.
25. Simplifying the expression gives $\frac{5-6+9}{\sqrt{4}} = \frac{8}{2} = 4$ days, **A**.
26. The area of this square is given by $s^2 = 4000^2 = 16,000,000 \text{ mi}^2$, **A**.
27. The circle has a radius of 2 feet or 24 inches. The circumference of the circle is given by $2\pi r = 2\pi * 24 = 48\pi$ in, **C**.
28. The square-root of a squared number is the original number, so $\sqrt{\sqrt{49^2}} = \sqrt{49} = 7$. **A**.
29. Using PEMDAS and simplifying, $3 + 2 - 17 + 8 \div 2 = 3 + 2 - 17 + 4 = -8$. **D**.
30. The Hubble Space Telescope is named after Edwin P. Hubble. **C**.

- 31. Adding 3 to both sides of the equation gives $4 - 9 + 3 = x = -2$, **D**.
- 32. Evaluating gives $12 - 30 + 87 = 69$, **C**.
- 33. The answer is "This one", **A**.
- 34. It was *SS Timberwolf* as mentioned in a previous question. **B**.
- 35. Neil Armstrong was the first man to walk on the moon, **A**.