

**CHILES MINI MU 2019**  
**PREALGEBRA – MID-ATLANTIC**  
**ANSWER KEY**

- 1) D
- 2) A
- 3) B
- 4) B
- 5) B
- 6) A
- 7) B
- 8) D
- 9) C
- 10) B
- 11) B
- 12) C
- 13) A
- 14) C
- 15) B
- 16) B
- 17) C
- 18) E (6)
- 19) C
- 20) D
- 21) D
- 22) B
- 23) D
- 24) D
- 25) D
- 26) A
- 27) C
- 28) A
- 29) A
- 30) A

## PREALGEBRA – MID-ATLANTIC SOLUTIONS

1. Simply multiplying the amount of each article of clothing gives you the answer since no order or anything else is required so  $3 \times 4 \times 5 \times 2 \times 2 = 240$  combinations **D**

2. New Years is 37 days which is 5 weeks and 2 days from a Wednesday. So two days after a Wednesday is Friday. **A**

3. Since the y coordinate is the same for both points. We just have to find the difference between the x coordinates which is 5. **B**

4. We plug 30 in for y as that is the amount of questions on this test into the expression like so  $(12(30) - 42) \times (30 - 2(14)) = (360 - 42) \times (30 - 28) = 318 \times 2 = 636$  **B**

5. The decimal representation of 10.57% is 0.1057 and the digit in the tenths place is 1 **B**

6. Divide both sides by m;  $F = ma \rightarrow a = F/m$ . **A**

7. rectangle is  $4 \times 10 = 40$  trapezoid is  $\frac{1}{2}(12+6)4 = 36$  **B**

8.  $2(12)+2(13)=50$ ,  $2(6)+2(50) = 12 + 100 = 112$  **D**

9. From the question, we know Brighten came first, Nathan came fourth, and Ben came last. Rahul finished before Nathan, and Bryan finished before Rahul. Thus, Bryan has to be in second place because he didn't come in third and the only places left between Nathan and Brighten is second and third. Consequently, Rahul had to have come in third. That leaves 5th place for Chris, and since no clue in the question makes this impossible, the answer is 5th place or **C**.

10. The area of a triangle is  $\frac{1}{2}$  the base length times the height. Since the triangle is equilateral (all sides are the same length) the side length is  $\frac{3}{3} = 1$  foot. Thus the area of the triangle is  $\frac{1}{2} \clubsuit$  ft. If 11324 triangles make up the net of the EPCOT ball, the area of the net is  $11324 \times \frac{1}{2} \clubsuit = 5662 \clubsuit$  ft<sup>2</sup>. **B**

11. For this question, first find the number of results possible:  $6 \times 6 = 36$ . Then, count the pairs of numbers that would result in a prime: (1,1),(1,2),(1,4),(1,6),(2,1),(2,3),(2,5),(3,2),(3,4),(4,1),(4,3),(5,2),(5,6),(6,1),(6,5). There is a total of 15, so  $15/36 = 5/12$ . **B**

12.  $9/8 = 1$  and  $\frac{1}{8} = 0.125$ .  $9/8 = 1.125$  which rounds to 1.13. **C**

13. Rahul's license plate number is 648213. The mean of these digits is  $((6+4+8+2+1+3)/6) = 4$ . The median of the digits is  $((3+4)/2) = 3.5$ . The sum of the mean and median is  $4+3.5 = 7.5$ . Noah's license plate number is 887039. The mean of these digits is  $((8+8+7+1+3+9)/6) = 6$ . The median of the digits is  $((7+8)/2) = 7.5$ . The sum of the mean and median is  $6+7.5 = 13.5$ . Thus, Rahul has the lowest sum of the mean and median of his license plate of 7.5. **A**

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14. repeating decimals can be made by dividing by the appropriate number of '9's'  $678/999$  creates .678 repeating so  $45 + 678/999$  **C**

15. Using the conversion factor that is given in the question, New Jersey is 80 kilometers away from New York City. Since it will take them 1.25 hours to get there, we can find their speed by:  
 $80/1.25 = 64$ . **B**

16.  $98+75-2-8-9+4 = 158$ . Multiplying and dividing this by 2 is the same as multiplying this by 1, so the value of the first term in the equation is 158. Next, you solve  $17+81+90+3 \times 93+244$ . Using PEMDAS, we must do  $3 \times 93$  first, which is equal to 279.  $17+81+90+279+244 = 711$ . Dividing 711 by 4.5, we get the value of the second term to be 158. Thus, the answer is  $158-158=0$ . **B**

17 The area of a triangle is half the base multiplied by the height. The height is 7 and the base is 2 so the area should be. **C**

18. If the car can drive 20 miles in one hour this means that means every 3 minutes the car will drive one mile. 3 minutes is 180 seconds and if Alex can solve one problem every 30 seconds we can see he will have time to complete 6 questions. **E**

19. After every 40 minutes, Jason has lost \$80 and Rob has won \$95, for a net of \$15 winnings combined.  
 $120 \div 15 = 8$  and  $8 \cdot 40 = 320$  minutes. **C**

20. The sequence shown is the Fibonacci sequence which is the next term in the series is equal to the previous two terms added. So the 7th term in this series would be 13 which is the width and if 26 is the length,  $26 \cdot 13$  should yield the area which is equal to 338. **D**

21. 4 choose 2. Or you can think that 1 team has 3 other teams they can play so that would be  $4 \times 3 = 12$  BUT A playing B is the same as B playing A so divide by 2 = 6. **B**

22. We first must note that 3 minutes and 15 seconds is equal to 205 seconds so the rate at which Jack falls is  $274 \text{ ft} \div 205 \text{ s}$  which when using long division comes out to around 1.4ft/s. **B**

23. A rational number can be written as a fraction while an irrational one cannot the only one that fits this description is **D**. Pi cannot be written as a fraction, nor can square roots but the square root of 64 can be simplified to 8 which is a rational number and the large fraction is already in fraction form, so it is rational thus giving 2 rational and 3 irrational numbers

24. This is a sequence. The radii in the sequence are 2, 4, 6, 8, 10 when they are added up altogether you get 30 inches **D**.

25.  $\frac{\sqrt{x}+x-x+2+-\sqrt{x}}{1 \cdot 1} = \frac{2}{1} = 2$  **D**

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26. Mia has to fill  $65 - 34 = 31$  liters into her car. Each liter is 0.86 crude oil (which is 86%). Multiplying  $0.86 \times 31$ , we get the answer to be 26.66, which rounds to 27 liters. **A**

27.  $\frac{1}{3}$  is rational by definition because it can be expressed as a ratio of two numbers. **C**

28. By plugging in the coordinates given, the only equation that satisfies the coordinates is  $x+y=11$ .  $2+9=11$ ,  $9+2=11$ . **A**

29. Pythagoreans Theorem  $16^2 + 31^2 = d^2$

$$\sqrt{256 + 961} = \sqrt{1217} \quad \mathbf{A}$$

30.

1<sup>st</sup> Reggie Not Dennis, Dennis does not have the most rebounds Reggie has more rebounds than Frank

2<sup>nd</sup> Dennis Julius has more rebounds than Frank but not Dennis

3<sup>rd</sup> Julius Julius has more rebounds than Frank but not Dennis

4<sup>th</sup> Frank

5<sup>th</sup> Evan. Evan has the least amount of rebounds

Dennis. **A**

$$16x - 166 = 122, 16x = 288, x = 18 \quad \mathbf{C}$$