1. B, First, you do $78 - 92 = -14$. Then, the absolute value of -14 is 14. Then, you are left with $14 * 7 + 19$, which equals $\boxed{117}$.

2. E, A good starting point for this problem is to notice that 3!, 2!, and 1! are the only factorials which result in a one digit answer. This gives us three options for the third digit as well as three options for the second digit. The first and last digits are able to be found by knowing the only even prime is 2, thus the first digit is 2 and the last digit is 1. This also allows us to eliminate the option of 1!, since 1is not a prime number. Thus there are two potential solutions to this problem: $\boxed{2221}$ or $\boxed{2631}$.

3. A, This displays the Distributive Property.

4. E, Using the order of operations, we solve the factorial first to be $3 * 2 * 1 = 6$. Then we do the exponent, and solve that $i^{2^6} = 1$. We then multiply $3 * 6 = 18$, and add $18 + 1 = \boxed{19}$.

5. C, Pascal's triangle's sums of rows are based on powers of two. Since 1 is the 0th row, 3rd row sum would be 2^3, 5th row would be 2^5 and the 6th row would be 2^6. Solving for those we get $8 * 32 * 64$ which equals $\boxed{16384}$.

6. C, The longest line in any circle is the diameter. The radius can be found by reversing the area of a circle formula $256\pi = \pi * r^2$. After, solve $256 = r^2$, $r = 16$. Then multiply by 2 to find the diameter which becomes $\boxed{32}$.

7. E, Since no indication of just positive integer factors is given, the negative and positive factors of 2020 cancel out with each other resulting in $\boxed{0}$.

8. B, A formula for this type of problem is, (number of letters!) / (number of repeating letters!). So applying this $\frac{8!}{2!2!}$, because both F and O repeat twice in the word. Solving results in $\boxed{10080}$.

9. A, First we need to find the slope which is $\frac{12-(-9)}{-3-(-10)} = \frac{21}{7} = 3$. To find the slope of the line perpendicular we need to take the multiplicative inverse of the slope of the original line. Doing this results in $\boxed{\frac{-1}{3}}$.

10. D, First lets simplify the numerator, $16 * 5 = 80, a^4 * a^2 = a^6, b^5 * b^3 = b^8, c^1 * c^{-3} = c^{-2}$. $\frac{80a^6b^8c^{-2}}{10a^{-2}b^{-4}c^2}$, simplifying this $80/10 = 8$, $\frac{a^6}{a^{-2}} = a^8$, $\frac{b^8}{b^{-4}} = b^{12}$, $\frac{c^{-2}}{c^2} = c^{-4}$. $\boxed{8a^8b^{12}c^{-4}}$.

11. B, The goat is able to graze $\frac{3}{4}$ of a circle with radius 10 since it is stopped by the sides of the barn. So $100\pi * \frac{3}{4} = \boxed{75\pi}$.

12. C, First let's find the units digit by realizing a pattern in powers of 7. The units digit runs in a cycle of 4 starting with 7^1: $7, 9, 3, 1$, and so on. We can do the same thing with the tens digit. We can find that the tens digit also runs in a cycle of 4 starting with 7^1, $0, 4, 4, 0$, and so on. Since 2020 is a multiple of 4, we can assume that the units and tens digits are the same as what they are in 7^4: 1 and 0. $1 + 0 = \boxed{1}$.

13. C, The 7th prime number is 17, the triangular numbers can be found with this formula $\frac{n(n+1)}{2}$. $\frac{7*8}{2} = 28$. The Fibonacci numbers are $1, 1, 2, 3, 5, 8, 13$. So $17 + 28 + 13 = \boxed{58}$.

14. A, Mean can be found by adding all the numbers and dividing by 10. $140/10 = 14$. The median will be the middle number when arranged from least to greatest, 14.5. The mode is the number repeated the most, 4. The range is the largest number minus the smallest number, $30 - 1 = 29$. So $14 + 14.5 + 4 + 29 = \boxed{61.5}$.

15. A, For every hour Shreyas finishes $\frac{1}{8}$ of the job and Harshil finishes $\frac{1}{4}$ of the job. So adding them together makes a per hour efficiency of $\frac{3}{8}$. Thus making the total time the inverse of their efficiency which is $\boxed{\frac{8}{3}}$ hours to complete the job.

16. A, $\sqrt{8}$ is just $2\sqrt{2}$, so the radius would be half so just $\sqrt{2}$. So the center of the triangle to one of the midpoints of a side would be $\sqrt{2}$. Drawing a $30 - 60 - 90$ triangle from this allows you to find the side length of the triangle to be $2\sqrt{6}$, finding the area to be $12\sqrt{3}$ after drawing another $30 - 60 - 90$. We know the radius of the larger circle to be $2\sqrt{2}$ which means the area is 8π. Since we are excluding the triangle area it would be $\boxed{8\pi - 12\sqrt{3}}$.

17. D, Start by drawing a Venn diagram with all the numbers. Then start from the two students who take everything and cancel two from every other category. After which any intersection and cancel them out. After doing this you should have the exclusive number of people per category. 12 in chemistry, 18 in physics, 16 in biology, 19 in chemistry and physics, 11 in physics and biology, 21 in chemistry and biology, and 2 that take all the subjects. Adding all these numbers results in 99. $100 - 99 = \boxed{1}$.

18. C, 72 and 75 are actually part of a multiple of the Pythagorean triple, $7, 24, 25$. Since $25 * 3 = 75$, we can assume that every part of this triple is multiplied by 3. The only side we need is a multiple of 7, so $7 * 3 = \boxed{21}$.

19. B, Set the equations equal to each other, $3x + 2 = 2.5x + 7$, solving $x = 10$. Substituting 10 back into the equations gives $\boxed{32}$ as y.

20. A, The greatest common factor is 4! because it is contained within all the other factorials and it is the greatest possible factor of 4!. $4! = \boxed{24}$.

21. C, on the first day he has a $\frac{1}{5}$ chance of wanting to eat a purple sock but then he has to get unlucky and not pick it, which has a $\frac{42}{50}$ chance. On the second day he has a $\frac{1}{5}$chance of wanting to eat the yellow sock and has a $\frac{5}{50}$ chance of picking correctly. Multiplying $\frac{42}{50} * \frac{1}{5} * \frac{1}{5} * \frac{5}{50} = \boxed{\frac{21}{6250}}$.

22. A, Using order of operations we start by evaluating the first parentheses. $27^{\frac{1}{3}}$ is 3 and $8^{\frac{1}{3}}$ is 2; $3 - 2 = 1$. The other set of the parentheses the exponents can be added to form 7^1 so $7 + 1 = \boxed{8}$.

23. C, 500 (start off) $+2000(2) + 200(2)(5) = \boxed{6500}$ coins

24. C, $\frac{12}{3} = 4$. $4(12) = \boxed{48}$

25. E, Since F = $\frac{9}{5}$C + 32, when you plug in 36 for C, you get $\boxed{96.8°F}$. However, the answer choice that had 96.8 was in C, so the answer was not listed.

26. B, There is a formula for this type of question, which is $(n-1)!$, where n is the number of people. Plugging in 8 for n yields $\boxed{5040}$.

27. D, For the first statement there's supposed to be a plus OR minus sign on the equation, so it is incorrect. The second statement is true, and the third statement is incorrect because whole numbers start with 0.

28. A, When you add up Dylan scores, you get 455. Then, you divide this by 5 to get the average: 91. The sum of Farzan's scores is 451. When you divide by 5, you get 90.2. $91 - 90.2 = \boxed{0.8}$

29. C, You must find the different possibilities for 0 toppings, 1 topping, 2 toppings, and 3 toppings and then you add it up. $217 + 3255 + 22785 + 98735 = \boxed{124992}$

30. D, you can approach this problem in two ways. The first method would be to count forwards, from 6:00 PM, to 12 AM midnight, to 12 PM noon, to 3:25 PM in the afternoon. The second approach is to count backward from 6:00 to 3:25. This would be a gap of 2 hours and 35 minutes. When we subtract this amount from 24 hours, we see that it takes $\boxed{\text{21 hours and 25 minutes}}$ to go from 6:00 PM to 3:25 PM.