**Answers**

1. A
2. B
3. B
4. D
5. C
6. B
7. D
8. D
9. A
10. C
11. C
12. D
13. A
14. E (-38599)
15. A
16. D
17. B
18. C
19. B
20. B
21. E (144)
22. D
23. C
24. B
25. C
26. D
27. C
28. B
29. B
30. C

**Solutions**

1. A - We are trying to find the 56th number in the pattern, and the pattern repeats every 5 numbers. 56 divided by 5 is 11 with a remainder of 1, so the pattern will repeat 11 times, plus one more number after that. Therefore the 56th number will be the first number in the repeated pattern after it had already repeated 11 times, making Justin A) 1st.

2. B - A number in scientific notation is in the form “a\*10^b” where “a” is a real number between 1 and 10, and “b” is an integer. The answer that matches this is B) 19.88 x 10^30.

3. B - Dividing 1435 by 18, you get 79, with a remainder of B) 13.

4. D - A polyhedron has no curved edges by definition, so therefore a D) Sphere is not a polyhedra.

5. C- to find the sum of all integers from 1 to 150, add the smallest number and the biggest number 1+150= 151, and multiply it by the middle number which can be found by dividing the biggest number by 2. 150/2 = 75, 75 x 151 = 11325

6.  B - Area of the annulus = area of the outer circle - area of the inner circle

Area of a circle= r^2

16pi- 9pi= 7pi

7. D – Alanna has six choices for the first manipulative, five choices for the second manipulative, and so on. Therefore, 6 • 5 • 4 • 3 • 2 • 1 = 720 ways.

8. D - 6 meters is equal to 600 cm. Since the question hints that one inch is about 2.5cm, that means 6 meters is about 600/2.5 inches, which is D) 240in.

9. A - Men's gymnastics was on the schedule of the first modern Olympic Games in **1896.**

10. C - The prime factorization of 136 is 2^3\*17, and the prime factorization of 221 is 13 \* 17. The only thing in common between the two of them is 17, so greatest common factor is C) 17.

11. C - He is able to swing 150 meters in 12 seconds. Multiplying both by 5, we get that he can swing 750 meters in one minute.

12. D - If Jamie can do 17 spins in 3 minutes, then she can do 17/3 spins in one minute. If Justin can do 12 spins in 5 minutes, that means he can do 12/5 spins in one minutes. Subtracting these two, we have 17/3- 12/5 = 85/15-36/15= 49/15

13. A- After following the 4 statements listed, the final line looks like this :

(front) Jamie Allison Kevin Julia (back)

14.  E - Starting from the inside and working out, we have to simplify the expression properly by using order of operations. 201\*202 = 40602, and subtracting that from 2000, we get -38602. Next, we look at the right side of the inside of the brackets: 1764/196 =  9, then multiplying by ⅓ we get 3. Adding the two and dividing by 1, we get

E) -38599.

15. A - If Jaewon stretches twice as long as Justin, which is 4 min, that means Justin stretches for 2 min, and since Jason stretches for half of Justin’s time, he only stretched for A) 1 min.

16. D - One yard is 3 ft, so there are 5280/3, or 1760, yards in one mile. Multiplying by 3, since the hospital is 3 miles away, we see that 3 miles is equal to D) 5280 yards. Another way to look at it is since you are dividing by 3 and then multiplying by 3 again, the answer is just the number you start with, the amount of feet in a mile.

17.  B - If he was born on the exact day in 1998, then that means he is currently exactly 18 years old right now. Since there are 12 months in a year, he is 216 months old. Since the question said he had been doing gymnastics since he was 20 months old, he’s been doing it for a total of 216-20 months, which is B) 196 months.

18. C - Connecting the hands to the feet, we see that the shape of the person most closely resembles that of a C) Trapezoid.

19. B -  Pretend the balance beam is a number line, where Victoria starts off at the point 0. From there she goes +20, -36, +0, -6, and then +20, which means she ends up at the point -2 or two inches from her original position.

20.  B - If Jaewon does 4 tumbles and each of them is worth 2 points, that means their duo queue has already earned 8 out of the 20 points they want. This means they are missing 20-8, or 12, points. Since each of Justin’s tumbles is worth 4, that means he only had to do 12/4, tumbles, which is equal to B) 3.

21.  E - 1212 = E) 144.

22. D - The least common multiple between 7 and 10 is 70, since they have no common factors. Looking through the answers for a prime number that is greater than 70, we see that D) 97 fits.

23. C - 0.05 minutes is equal to 3 seconds, since it’s one-tenth of half a minute. plus 9 seconds. They give us that the last part takes 2 seconds. Adding them all up, we get 3+9+2 = 14 seconds.

24. B - There will only bc one gold medal as the questions specifies that there are no ties. Therefore 120of the people will win gold medals. This fractions is equal to 5/100=B) 5%

25.  C - Since the bars are 3 ft apart vertically and 4 ft apart horizontally, we can use Pythagorean Theorem to find the distance between the bars. 3^2+4^2=d^2, where d is the distance. Since 3^2+4^2=9+16=25 = d^2, we can see that the distance between the two bars is C) 5.

26. D -  Since Cayle needs to pick one of each article of clothing to make an outfit, she can make a total of 10\*5\*10 outfits, which is equal to 500.

27. C - To find percentage increase, you subtract the first number from the second number, then put it all over the first number to find the fraction. You then multiply by 100 to find the percentage. In this case it is (10-2)/2=4=C)400%. Note that the answer is not 500% because even though 10 is 500% of 2, the percent increase is only 400%.

28. B - Since the word “ROPE” has 4 letter, and they are all different, the number of arrangements is just 4! = 4\*3\*2\*1, or B) 24.

29. B - 10+8+12+8+7 = 45, and 45/5 = B) 9

30. C – The range is the difference between the largest and smallest numbers. 12 – 7 = 5.