1. **C**; In XXII, there are two X's and two I's. 10+10+1+1= 22

2. **C**; $8.20 + $10.50 = $18.70

3. **D**;

4. **C**; The star shape in the corner contains five points and connecting them results in a shape with 5 edges, which is, by definition, a pentagon. 

5. **A**; The range is the highest number minus the lowest number of a set. 14 – 1 = 13.

6. **D**; The mode is the number that appears most frequently in a set. The number 1 appears 3 times, more than any other number in the set.

7. **A**; Think of the flag as a rectangle and two equally sized triangles. The dimension of the rectangle is 2 feet by 1 foot, with an area of 2 ft2. The area of each triangle is found by multiplying base times height divided by 2. This gives an area of 1 ft2 for each triangle. Add the areas to give: 2 ft2 + 1 ft2 + 1 ft2 = 4 ft2.

8. **E**; 2 is a prime number, so I is true. 2 is divisible by 2, so II is true. , so III is true. I, II, and III are all true, so the answer is NOTA.

9. **A**; Each man has two skates, giving 24 skates. Add the two mysterious skates to give 26 skates in total.

10. **B**; Jaewon did not get the gold medal, so he must have either received the silver or bronze medal. Justin either got the gold or silver medal. Chamara was neither the gold or silver medalist, so he must have received the bronze medal. That means that Jaewon received the silver medal. That leaves the gold medal for Justin. From highest to lowest placing, the order is Justin, Jaewon, Chamara.

11. **C**; The area of the rink is 20,000 ft2. Divide that by 500 to find the number of minutes it will take: 20,000500 = 40.

12. **C**; Volume equals length times base times height. 200 ft 100 ft 0.5 ft = 10000 ft3.

13. **C**; Victoria and Amy both jump the same height, 21 inches. Comparing the fractions, Jamie’s jump of inches is less than 21 inches (inches) and Jennifer’s jump of inches is greater than 21 inches ( inches). This means that Jennifer jumped the highest.

14. **B**; Cayle and Alberic form the legs of a right triangle, and their distance is the hypotenuse. Use the pythagorean theorem to find the length of the hypotenuse: . Cayle goes 3 feet and Alberic skates 4 feet. So the hypotenuse is 5 feet and the distance between Cayle and Alberic is 5 feet.

15. **C**; The 7 and 14 cancel to leave 2 in the denominator: . To divide a fraction, multiply by its reciprocal: . The 5’s cancel, and the 2’s in the denominator are multiplied to leave 4: = .

16. **B**; 64 .75 = 48.

17. **B**; The sum of the 4 scores is 80 4 = 320. The new sum after the fifth score is added is 78 5 = 390. Subtracting the sum of the 4 scores from the sum of the five scores gives 70.

18. **A**; There are 10 letters in the words “ICE SKATING”. 2016 divided by 10 has a remainder of 6, and the 6th letter in the words “ICE SKATING” is “A”.

19. **D**; 72 = 49.

20. **B**; First, we can add up all the skating events. 500+1000+1500+5000+10000= 18000. The conversion between meters and kilometers is that 1000m=1km. Using this information, we divide the 18000 meters by 1000 to get 18 km.

21. **C**; Solution for the above problem. The shape of the race track is essentially a circle and rectangle with the circle being halved and placed on the edges of the rectangle. The actual track length is composed of the circumference of the circle and two edges of the rectangle (the one with the length of 25 ft). The formula for the circumference of a circle is . The diameter is given as 15 feet so 15ft\*3.14= 47.1 ft. The two sides of the rectangle that make up the track are 25 feet. so 47.1+25+25=97.1

22. **D**; The sum of the number of medals belonging to China is 28. Since the total medals in the bag are 72, to find the chance of selecting one of the 28 Chinese/Korean medals, we put . This simplifies to

23. **B**; First, we have to calculate how long it took for each of them to slide across individually. To do this, we have to divide 60ft by each of their speeds. 60/15=4minutes for Joanna to slide across. 60/12 = 5 minutes for Jason to slide across. 60/10 = 6 minutes for Jamie to slide across. Adding these together gives us a total value of 15 minutes.

24.**D**; If Andrew trains for 150 minutes every day and there are seven days a week, we do 7\*150= 1050 minutes. To find the number of hours, we divide this by 60 which equals 17.5 hrs.

25. **C**; The tenth prime number is 29 (1 isn't a prime number). =2\*2\*2\*2= 16. 29\*16=464.

26. **D**; We must first solve the innermost parentheses. = =64. = -23. -23\*4=-92. -92= -94

27. **E**; 36/4=9. This is the amount of weeks that Townsend has used his skates. Since Nick uses 1 skate every three weeks, this means he uses 1/3 of a skate every week. (1/3)\*9=3

28. **B**; The second day Tommy does one less jump than the first, the third day he does 2 less than the second, the fourth day he does 3 less than the third and so on.

1 2 3 4 5 6 7 8 9 10 11

55 54 52 49 45 40 34 27 19 10 0

Above shows the amount of jumps he does until the day he reaches zero jumps. Adding them all together results in 385 total jumps.

29. **E**; 15 American figure skaters went to the 2014 Olympics.

30. **A**; Norway