Name _____

2021-11-21 - Jefferson Middle School - Target Round Practice

1. _____ In the sequence 2,5,26, ... , each term is found by squaring the previous term and adding 1. What is the fifth number in this sequence?

2. _____ In the sequence 16, 80, 48, 64, A, B, C, D, each term beyond the second term is the arithmetic mean (average) of the previous two terms. What is the value of D?

3. _____ A regular polygon has interior angles between 128 degrees and 130 degrees. How many sides does the polygon have?

4. _____ In how many ways can Harold, Steve, John, Roslyn, Marian and Connie line up so that no two of the three boys are next to each other?

5. _____ A jar contains 28 red jelly beans, 14 black jelly beans and 6 green jelly beans. What is the probability that two jelly beans selected at random, and without replacement, from this jar are the same color? Express your answer as a common fraction.

6. _____ The raw scores on the physics group projects are $18, 29, 32, 35, 36, 49, 53, 64, 66$. The teacher wants to rescale the scores using the linear formula $G = kR + c$, where G is the final grade and R is the raw score. She wants the highest score to scale to 100 and the median to scale to 80. What is the value of the product kc? Express your answer as a common fraction.

7. _____ Corey is reviewing a practice test but has lost the answer key to the ten True/False questions. He knows that:

   - there are the same number of true answer as false answers;
   - the first and last answers are the same;
   - there are at least three false answers in a row;
   - the answers to questions 5 and 9 are false while question 8 is true; and
   - there are more true answers than false answers in the first five questions.

   How many possible answer keys meet these criteria?

8. _____ If N^3 is a divisor of 10!, then what is the greatest possible integer value of N? (Note: $n!$ means the product of the integers from 1 to n, so $5! = 5 \times 4 \times 3 \times 2 \times 1$, for example.)