Bubble in your answers on the answer sheet. Be sure to erase all mistakes completely. You do not need to bubble in leading zeros – the answer of "7" does not need to be answered as "007". If your answer is a fraction like $\frac{3}{16}$, bubble in 316.

1. **2 points:** How many three-digit positive integers are divisible by 11?

2. **2 points:** What time will it be exactly 2012 minutes after 12:12am? **Express your answer in the form ABC, where A:BC is the correct time.**

3. **2 points:** What is the next number in the following sequence?

$$0.25, 0.5, 1, 2, 4, \underline{\hspace{1cm}}$$

4. **3 points:** If $0.\overline{684}$ is written as a reduced fraction, what is its numerator?

5. **3 points:** April 1st, also known as April Fools' Day, occurred on a Sunday this year. In how many years will April Fools' Day next occur on a Sunday?

6. **3 points:** Define a **pretty prime** to be a prime number with only prime digits. Define a **cool composite** to be a composite number with only composite digits. How many two-digit numbers are either pretty primes or cool composites? (Note: The numbers 0 and 1 are neither prime nor composite.)

7. **3 points:** If the 3$^{\text{rd}}$ term of an arithmetic sequence is 7 and the 34$^{\text{th}}$ term is -179, what is the first term?

8. **4 points:** How many positive three-digit numbers contain at least one of the following digits: 1, 2, 4, 5, 6, 7, 8, 9?

9. **4 points:** Suppose that you have mastered the art of skipping rocks, and you have thrown a rock such that it will skip half the distance of the previous skip forever. If the initial distance before the first skip is 4 feet, and the rock skips 16 feet on the first skip, how far will the rock travel in total? **Express your answer as a number of feet.**

10. **4 points:** Julie was so excited about learning how to write numbers, she spent her Saturday morning writing the positive integers in increasing order beginning with 1. She decided to be clever with her mom and wouldn't tell her what number she ended on, but did say that she had written the digit 1 exactly 55 times. On which three-digit number did Julie end?

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8. **4 points:** How many positive integers less than 500 have exactly three positive integer factors?

9. **4 points:** What is the greatest possible value of $\underline{} + \underline{} \div \underline{} - \underline{} \times \underline{}$, if each blank is filled with a unique one-digit positive integer?

10. **4 points:** How many non-empty subsets of the set $\{4, 8, 15, 16, 23, 42\}$ contain only even numbers?

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9. **4 points:** How many consecutive times can 20 be divided evenly into 50!?

10. **4 points:** Evaluate the following expression: $\left(2 - \dfrac{1}{3}\right)\left(2 - \dfrac{3}{5}\right)\left(2 - \dfrac{5}{7}\right)\cdots\left(2 - \dfrac{35}{37}\right).$

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8. **4 points:** How many ways can you make change for $0.50 using any combination of pennies, nickels, dimes, and/or quarters?

9. **4 points:** As a new invention, you are trying to create a weight set that will help people work up gradually from lifting 1 pound up to lifting 50 pounds. If each weight must weigh a unique, whole number of pounds, what is the fewest number of weights needed to be able to weigh any integral weight up to 50 pounds when one or more weights are combined?

10. **4 points:** When the expression below is simplified, what is the sum of the ones and tens digits of the resulting number?

$$100! + 99! + 98! + \ldots + 3! + 2! + 1!$$