SAT Prep

1. If \( k = 5t \) and \( t = 6 \), what is the value of \( 5k? \)
   
   a. 5  
   b. 6  
   c. 30  
   d. 36  
   e. 150

2. **Some integers in set \( U \) are negative.**  
   If the statement above is true, which of the following must also be true?  
   
   a. All integers in set \( U \) are negative.  
   b. All integers in set \( U \) are positive.  
   c. If an integer is negative, then it is in set \( U \).  
   d. If an integer is positive, then it is in set \( U \).  
   e. Not all integers in set \( U \) are positive.

3. Squaring the product of \( x \) and 4 gives the same result as squaring the difference of \( x \) and 4. Which of the following equations could be used to calculate all the possible values of \( x \)?
   
   a. \( 4x^2 = x^2 + 4^2 \)  
   b. \( (4x^2) = (x - 4)^2 \)  
   c. \( 4^2x = x^2 - 4^2 \)  
   d. \( (4x)^2 = x^2 + 4^2 \)  
   e. \( 4x^2 = (x + 4)^2 \)

4. To make Tam’s tantalizingly tasty toffee cookies, flour, sugar, and salt are mixed by weight in the ratio 7:3:1, respectively. In order to make 11 pounds of the dough for this cookie, what weight of sugar, in pounds, is needed?
   
   a. 7  
   b. 3  
   c. 1  
   d. \( \frac{1}{3} \)  
   e. \( \frac{1}{7} \)

5. The local donut shop donated some donuts to Professor Galactic’s astronomy class. If each student takes two donuts, there will be 16 donuts left. If four students do not take any donuts and the rest of the students take six donuts, there will be no donuts left. How many donuts were donated to the class?
   
   a. 24  
   b. 30  
   c. 36  
   d. 40  
   e. 48
6. Tran can mow the lawn in three hours while it takes Collin four hours to mow the same lawn. How long will it take if they mow the lawn together? (They start at opposite sides and work toward each other.)
   a. 12 hours  b. 7 hours  c. \( \approx 1.7 \) hours  d. \( \approx 42 \) minutes  e. \( \approx 9 \) minutes

7. On a certain map, 15 miles are represented by one-half inch. On the same map, how many miles are represented by 3.75 inches?

8. How many of the first one hundred positive integers contain the digit 1?

9. The sum of two consecutive integers is greater than three but less than 13. What is one possible integer fitting these conditions?

10. Give three values for \( k \) for which the trinomial \( 3x^2 + kx + 6 \) is factorable.

Answers

1. E  2. E
2. B  4. B
3. C  5. C
4. 112.5 miles  6. 20
7. Any of 2, 3, 4, or 5 will work.  10. 19, 9, 11, –19, –9, –11