1. In 2014, County X had 783 miles of paved roads. Starting in 2015, the county has been building 8 miles of new paved roads each year. At this rate, how many miles of paved road will County X have in 2030? (Assume that no paved roads go out of service.)

2. In 2014, County X had 783 miles of paved roads. Starting in 2015, the county has been building 8 miles of new paved roads each year. At this rate, if n is the number of years after 2014, which of the following functions f gives the number of miles of paved road there will be in County X? (Assume that no paved roads go out of service.)

   A) $f(n) = 8 + 783n$

   B) $f(n) = 2,014 + 783n$

   C) $f(n) = 783 + 8n$

   D) $f(n) = 2,014 + 8n$

3. In 2014, County X had 783 miles of paved roads. Starting in 2015, the county has been building 8 miles of new paved roads each year. At this rate, in which year will County X first have at least 1,000 miles of paved roads? (Assume that no paved roads go out of service.)

4. To edit a manuscript, Miguel charges \$50 for the first 2 hours and \$20 per hour after the first 2 hours. Which of the following expresses the amount in dollars, C, Miguel charges if it takes him x hours to edit a manuscript, where $x \geq 2$?

   A) $C = 20x$

   B) $C = 20x + 10$

   C) $C = 20x + 50$

   D) $C = 20x + 90$

5. The stratosphere is the layer of the Earth's atmosphere that is more than 10 kilometers (km) and less than 50 km above the Earth's surface. Which of the following inequalities describes all possible heights x, in km, above the Earth's surface that are in the stratosphere?

   A) $|x + 10| < 50$

   B) $|x - 10| < 50$

   C) $|x + 30| < 20$

   D) $|x - 30| < 20$

6. Maizah bought a pair of pants and a briefcase at a department store. The sum of the prices before sales tax was \$130.00. There was no sales tax on the pants and a 9% sales tax on the briefcase. The total Maizah paid, including the sales tax, was \$136.75. What was the price, in dollars, of the pants?

7. Each morning John jogs at 6 miles per hour and rides a bike at 12 miles per hour. His goal is to jog and ride his bike a total of at least 9 miles in less than 1 hour. If John jogs j miles and rides his bike b miles, which of the following systems of inequalities represents John's goal?

   A) $\frac{j}{6} + \frac{b}{12} < 1$
   $j + b \geq 9$

   B) $\frac{j}{6} + \frac{b}{12} < 1$
   $j + b < 9$

   C) $6j + 12b \geq 9$
   $j + b < 1$

   D) $6j + 12b < 1$
   $j + b \geq 9$

8. $$3(\frac{1}{2} - y) = \frac{3}{5} + 15y$$

   What is the solution to the equation above?

9. $$-2(3x - 2.4) = -3(3x - 2.4)$$

   What is the solution to the equation above?

10. $$-2x = 4x + 6$$
    $$2(2y + 3) = 3x - 5$$

    What is the solution to the system of equations above?

11. $$2y + 6x = 3$$
    $$y + 3x = 2$$

    How many solutions (x, y) are there to the system of equations above?

    A) Zero

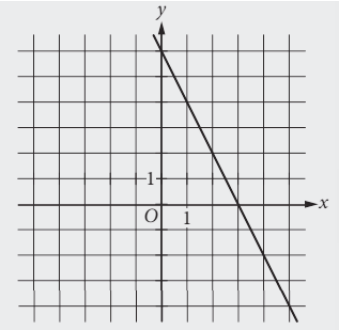
    B) One

    C) Two

    D) More than two

12. $$3s - 2t = a$$
    $$-15s + bt = -7$$

    In the system of equations above, a and b are constants. If the system of equations has infinitely many solutions, what is the value of a?

13. 

The graph of line k is shown in the xy-plane above. Which of the following is an equation of a line that is perpendicular to line k?

A) $y = -2x + 1$

B) $y = -\frac{1}{2}x + 2$

C) $y = \frac{1}{2}x + 3$

D) $y = 2x + 4$

14. A voter registration drive was held in Town Y. The number of voters, V, registered T days after the drive began can be estimated by the equation $V = 3{,}450 + 65T$. What is the best interpretation of the number 65 in this equation?

A) The number of registered voters at the beginning of the registration drive

B) The number of registered voters at the end of the registration drive

C) The total number of voters registered during the drive

D) The number of voters registered each day during the drive

ANSWER KEY

1. 911
2. C
3. 28 or 2042
4. B
5. D
6. 55
7. A
8. $\frac{1}{20}$
9. 0.8
10. $(1, -2)$
11. A
12. $\frac{7}{5}$
13. C
14. D