1.)
Find the solution to the system of equations:
$7x+5y=20$
$2x+y=4$

A) $x = 5/7, y = 3$
B) $x = 0, y = 4$
C) $x = 2, y = 0$
D) $x = -2, y = 0$

2.)
A line in the xy-plane passes through the point (4, -1) and is perpendicular to the line with equation $y = x + 5$. Which of the following is an equation of the line?

A) $y = x + 3$
B) $y = x - 3$
C) $y = -x + 3$
D) $y = -x - 3$

3.) (Free Response)
$C = 0.25(L-1200)$
The cost, C, in dollars, to the holder of a liability insurance account given a total liability of L dollars is given by the equation above as long as C is positive. By how many dollars does the liability increase when the cost to the holder increases by 1 dollar?

4.)
Find the solution to the system of equations:
$5x+2y= -9$
$3x+4y=1/5$

A) $x = -13/5, y = 2$
B) $x = 0, y = -9/2$
C) $x = -2/5, y = -7/2$
D) $x = -4/3, y = 21/20$

5.)
Which of the following is an equation of the line A graphed in the xy-plane that passes through the point $(-1, 3.5)$ and is perpendicular to the line B whose equation is $x + 4.5 = 0$?

A) $x = -1$
B) $x = 3.5$
C) $y = 3.5$
D) $y = 4.5$

6.)
An unloaded semi-truck, with the driver aboard, weighs 30,000 pounds. When fully loaded, the semi-truck holds 26 pallets of cargo, and each of the 18 tires of the fully loaded semi-truck bears approximately 3,330 pounds. What is the approximate average weight of one pallet of cargo?

A) 1,131 pounds
B) 1,280 pounds
C) 1,633 pounds
D) 1,665 pounds

7.)
A 400-seat public theater collects $5 per theater goer, but does not collect any money from accompanying children under the age of five. If children under five still require seats, which of the following functions best models how many dollars, d, the theater earns during a sold-out show, with c children under the age of five in attendance?

A) $d(c) = 5(400 + c)$
B) $d(c) = 5(400 - c)$
C) $d(c) = 400(5 + c)$
D) $d(c) = 400(5 - c)$

8.)
Over the course of 4 years of training for the 100-meter dash, Erica's best time at each end-of-year track meet improved linearly by 0.3 seconds per year. Her best time at her first end-of-year track meet was 13 seconds. Which of the following equations shows Erica's best time, b, after y years of training for $1 \leq y \leq 4$?

A) $b = 13 - 0.3(y - 1)$
B) $b = 13 - 0.3y$
C) $b = (13/0.3)(y - 1)$
D) $b = (13/0.3)y$

9.)
There are currently about 2.4 million square miles of tropical rainforest, but most experts agree that about 125 square miles of tropical rainforest are being lost per day. If this rate of depletion continues, which of the following inequalities best describes the number of years from now, y,when the rainforest will be depleted to 2 million square miles or less? Assume 1 year = 365 days.

A) $2{,}400{,}000 - 45{,}625y \leq 2{,}000{,}000$
B) $2{,}400{,}000 + 45{,}625y \leq 2{,}000{,}000$
C) $2{,}400{,}000 - 125y > 2{,}000{,}000$
D) $2{,}400{,}000 + 45{,}625y > 2{,}000{,}000$

10.)
Joanne and Richard volunteer at a hospital. Joanne volunteers 4 hours more per week than Richard does. In a given week, they do not volunteer for more than a combined total of 16 hours. If x is the number of hours that Richard volunteers, which inequality best models this situation?

A) $x + 4 \leq 16$
B) $2x + 4 \leq 16$
C) $2x + 8 \leq 16$
D) $2x - 4 \leq 16$

11.)
$43 = 8c - 5$

What is the value of c?

A) 5
B) 6
C) 4
D) -1

12.)
$41 = 12d - 7$

What is the value of d?

A) 4
B) 6
C) 3
D) -2

13.)
$6 = 2(y + 2)$

What is the value of y?

A) 2
B) -1
C) 1
D) 0

14.)

Each cup of cooked brown rice has 216 calories and 5 grams of protein. Each cup of kidney beans has 220 calories and 16 grams of protein. Which of the following systems of equations could be used to determine the amount of rice, r, in cups, and the amount of beans, b, in cups, that should be eaten in order to consume 435 calories and 18.25 grams of protein?

A) $216r + 5b = 435$
$220r + 16b = 18.25$

B) $216b + 5r = 435$
$220b + 16r = 18.25$

C) $216r + 220b = 435$
$5r + 16b = 18.25$

D) $216b + 220r = 435$
$5b + 16r = 18.25$

15.)

A concert venue sold two types of tickets for an upcoming concert: reserved tickets and general admission tickets. Reserved tickets sold for $50.00 each and general admission tickets sold for $34.00 each. If 1,520 tickets were sold for a total of $64,000, which of the following systems could be used to find the number of reserved tickets, r, and the number of general admission tickets, g, that were sold?

A) $50g + 34r = 64{,}000$
$r + g = 1{,}520$

B) $50r + 34g = 64{,}000$
$r + g = 1{,}520$

C) $50g + 34r = 1{,}520$
$r + g = 64{,}000$

D) $50r + 34g = 1{,}520$
$r + g = 64{,}000$

16.)

Vanessa has a $900 travel and lodging budget for her vacation. She found round-trip plane tickets for x dollars total, a hotel for y dollars per night, and free shuttle service between the airport and the hotel. If she plans to stay at the hotel for 5 nights, and she spends less than what she budgeted on travel and lodging, which of the following inequalities best describes the scenario?

A) $x + 5y > 900$

B) $5x + y > 900$

C) $x + 5y < 900$

D) $5x + y < 900$