1.

Last Tuesday, Alex sent $2m$ text messages per hour for 4 hours and Evan sent $3t$ text messages per hour for 5 hours. If Pedro sends double the text messages per hour as both Alex and Evan combined, how many texts does Pedro send in 3 hours?

A) $3m + 4.5t$
B) $6m + 9t$
C) $4m + 6t$
D) $12m + 18t$

2.

Nicole repairs laptops for an electronics company. Each week she is assigned a certain amount of laptops that need to be repaired. The number of laptops she has left to fix at the end of each day can be estimated with the equation L=24-6d, where L is the number of laptops left and d is the number of days she has worked that week. If Nicole has worked 1 day, how many laptops has she fixed by the end of the day?

A) 6 laptops
B) 24 laptops
C) 12 laptops
D) 18 laptops

3.

$$h(t) = 3t + 20$$
A pediatrician uses the above equation to model the average growth of newborn girls from the time they're born to the age of 3. If the variable t represents 6 months, how tall is the average girl when she is 2 years old?

A) 26 inches
B) 29 inches
C) 35 inches
D) 32 inches

4.

> 1 Kilometer = 1000 meters
> 1 meter = 100 centimeters

On his way home from college, John takes the train 618 Kilometers from the University Richmond back to New Jersey. How many total centimeters does John travel from on his journey?

A) $6.18*(10)^7$
B) $6.18*(10)^6$
C) $6.18*(10)^8$
D) $6.17*(10)^5$

5.

John can eat between 17 and 36 dougnuts an hour. If John eats a total of 306 dougnuts, what is a possible amount of time, in hours, it could take John to eat all the doughuts?

6.

A train crosses a bridge that can support a maximum of 500,000 pounds. If the train itself weighs 350,000 pounds, and if every passenger weighs 145 pounds, what is the total number of people that the train may carry before the bridge collapses?

7.

A car transportation service uses the following formula
to calculate the cost of each ride: $12 + .45M$. M represents
the number of minutes the driver travels for. Which of the
following most accurately describes the meaning of .45
in the given formula?

A) The starting cost of .45 cents per service
B) The maximum charge of .45 cents per customer
C) The flat rate of 45 dollars per service
D) The additional .45 charge per minute the driver
travels for

8.

The sales manager of a company awarded a total of
$2250 in bonuses to the most productive salespeople.
The bonuses were awarded in amounts of $150 or
$450. If at least one $150 bonus and at least one $450
bonus were awarded, what is one possible number of
$150 bonuses awarded?

9.

John set up a store at his school that sells pencils and erasers. Johnny earns $0.27 for each pencil he
sells and $0.08 for each eraser. Which of the following expressions represents the amount, in dollars,
that John earns if he sells p number of pencils and e number of erasers?

A) $\$0.27p + \$0.08e$
B) $\$0.08p - \$0.27e$
C) $\$0.27p - \$0.08e$
D) $\$0.08p + \$0.27e$

10.

A quality control manager at a factory selects 11 knives at random for inspection out of every 500 knives produced. At this rate, how many lightbulbs will be inspected if the factory produces 30,000 knives?

A) 400
B) 550
C) 660
D) 825

11.

$$l = 6 + 2.5m$$

A rubber band is attached to a ceiling. When an object of mass m kilograms is attached to the rubber band, the band stretches to a length of l centimeters as shown in the equation above. What is m when l is 13?

A) .5
B) 2
C) 2.8
D) 3.5

12.

The amount of money a magician earns is directly proportional to the number of people attending his performances. The magician earns $75 at a performance where 15 people attend.

How much money will the magician earn when 24 people attend a performance?

A) $360
B) $250
C) $150
D) $120

13.

The amount of money a magician earns is directly proportional to the number of people attending his performances. The magician earns $75 at a performance where 15 people attend.

The magician uses 31% of the money earned to pay the costs involved in putting on each performance. The rest of the money earned is the magician's profit. What is the profit the magician makes at a performance where 15 people attend?

A) $23.25
B) $51.75
C) $57.00
D) $68.75

14.

When 6 divided by x is added to 8, the result is 11. What number results when 4 times x is deducted by 9?

A) -1
B) 0
C) 2
D) 3

15.

In a video game, each player starts the game with k points, wins 3 points each time a task is completed and loses 2 points each time a task is not completed. If a player who completes 20 tasks and fails to complete 25 tasks has a score of 110 points, what is the value of k?

A) 0
B) 100
C) 150
D) 200

16.

A truck driver uses a truck to move boxes that weigh either 30 pounds or 45 pounds each. Let x be the number of 30-pound boxes and y be the number of 45-pound boxes. The truck can carry up to either 40 boxes or a weight of 2,000 pounds. Which of the following systems of inequalities represents this relationship?

A) $30x + 45y \leq 2{,}000$
$x + y \leq 40$

B) $45x + 30y \leq 2{,}000$
$x + y \leq 40$

C) $30x + 45y \leq 40$
$x + y \leq 2{,}000$

D) $x + y \leq 2{,}000$
$30x + 45y \leq 2{,}000$

17.

If the average person reads at a rate of three pages per minute, how many minutes would it take the average person to read 156 pages?

18.

If x days and 10 hours is equal to 154 hours, what is the value of x?

19.

John is painting his Mother's house. John paints n walls, each of length l, and width w, and g represents the quality price of the paint John uses. So, the amount of paint John uses is represented by the equation $p = nlwg$. If John's mother asks John to do a second coat, what variable will double?

A) n
B) l
C) w
D) g

20.

Cup 1 contains 6 more than twice the pennies as cup 2. Cup 3 contains one less than half the pennies as cup 2. If cup 3 contains 4 pennies, how many pennies are in cup 1?

A) 26
B) 10
C) 24
D) 12

21.

At Lincoln High School, approximately 8 percent of enrolled juniors and 3 percent of enrolled seniors joined national spelling contest last year. If there were 584 juniors and 495 seniors enrolled in Lincoln High School last year, which of the following is closest to the total number of juniors and seniors at Lincoln High School last year who joined national spelling contest?

A) 45
B) 62
C) 58
D) 20

22.

The average number of workers per department in West Chocolate Factory from 2006 to 2016 can be modeled by the equation $y = 0.45x + 36.9$, where x represents the number of years since 2006, and y represents the average number of workers per department. Which of the following best describes the meaning of the number 0.45 in the equation?

A) The average number of workers per department in 2006
B) The estimated increase in the average number of workers per classroom each year.
C) The total number of workers at the factory in 2006
D) The estimated difference between the average number of workers per department in 2016 and in 2006

23.

Andre runs 80 meters in 12.5 seconds. If he runs at this same rate, which of the following is closest to the distance he will run in 3 minutes?

A) 782 meters
B) 976 meters
C) 1,152 meters
D) 1,369 meters

24.

The school play sells $3 tickets to students and $5 tickets to the public. If Jody spends at least $25 but no more than $30 on 4 student tickets and x public tickets, what is a possible value of x?

25.

The monthly subscription for an online music site is $11.20. The subscription fee includes all songs online, but there is an additional fee of $.20 to download each music video online. For 2 months, Nicole's fees totaled to $23.60. In those two months, how many music videos did Nicole download from the site?

A) 0
B) 5
C) 6
D) 2

26.

In order to compete in next month's race, Sam must be able to run at a speed of 8 mph. Sam can currently run at a speed of 5.8 mph. With training, he believes he will be able to increase his speed by .5 mph each week. Which of the following represents the speed in mph at which Sam believes he will be able to run w weeks from now?

A) $14.6 + w$
B) $.5 + 5.8$
C) $.5 + 5.8w$
D) $5.8 + .5w$

27.

A 6 pound watermelon is sliced into 3 even pieces. Then those 3 pieces are sliced into 4 even pieces. What is the weight, in ounces, of each of the pieces?
(1 pound = 16 oz)

A) 8
B) 16
C) .5
D) 4

28.

Ryan surveyed a random sample of college students to determine what type of music they prefer to listen to while they study. Of the 110 students Ryan surveyed, 11.5% of students preferred country, 32.2% of students preferred rap music, and 52.3% of students preferred classical. If this sample is representative, how many students would we expect to prefer country music while they study, in a college class of 2,000 students.

A) 200
B) 260
C) 115
D) 110

29.

The area of a circle is equal to π times the diameter. What is the diameter, in centimeters if the area of a circle equals 16 square centimeters.

A) $16/\pi$
B) $\pi/16$
C) 4
D) 4π

30.

Last night, Joe studied for 3 more hours than Sarah. If they studied a combined total of 7 hours, how many hours did Sarah study last night?

A) 2 hours
B) 2 hours 15 minutes
C) 4 hours
D) 1 hour 45 minutes

31.

A specific bathtub can hold up to 50 gallons of water. If the bathtub already holds 5 gallons of water and the faucet is pouring out 3 gallons per minute, after how many more minutes will the bathtub be full?

32.

Tracy earns a flat rate of 16 dollars an hour at her new job. For each sale she makes, s, she receives an additional sales commission of 4 dollars. The amount of money she makes in one hour can be modeled by the equation $D = 16 + 4s$. If a quarter of Tracy's earnings are used to pay for monthly expenses, how much of her earnings (per hour) does she get to keep if she makes 17 sales?