Drill 3

Remember, answers to these drill questions can be found in Part IV!

a. If a student scores 70, 90, 95, and 105, what is the average (arithmetic mean) for these tests? _____

b. If a student has an average (arithmetic mean) score of 80 on 4 tests, what is the total of the scores received on those tests? _____

c. If a student has an average of 60 on tests, with a total of 360, how many tests has the student taken? _____

d. If the average of 2, 8, and x is 6, what is the value of x? _____

2, 3, 3, 4, 6, 8, 10, 12

e. What is the median of the group of numbers above? _____

f. What is the mode of the group of numbers above? _____

g. What is the range of the group of numbers above? _____

h. What percent of 5 is 6? _____

i. 60 percent of 90 is the same as 50 percent of what number? _____

j. Jenny's salary increased from $30,000 to $33,000. By what percent did her salary increase? _____

k. In 1980, factory X produced 18,600 pieces. In 1981, factory X produced only 16,000 pieces. By approximately what percent did production decrease from 1980 to 1981? _____

The amount of money in a savings account after m months is modeled by the function $f(m) = 1{,}000(1.01)^m$.

l. What was the original amount in the bank account? _____

m. By what percent does the amount in the account increase each month? _____

n. In a certain bag of marbles, the ratio of red marbles to green marbles is 7:5. If the bag contains 96 marbles, how many green marbles are in the bag? _____

o. One hogshead is equal to 64 gallons. How many hogsheads are equal to 96 gallons? _____

p. The pressure and volume of a gas are inversely related. If the gas is at 10 kPa at 2 liters, then what is the pressure when the gas is at 4 liters? _____

2

If 10 pecks are equivalent to 2.5 bushels, then 4 bushels are equivalent to how many pecks?

A) 4

B) 10

C) 12.5

D) 16

12

A forest fire is burning an area of forest that is 10 square miles. An air squad is able to reduce the size of the fire by 7% every 12 hours. If $F(t)$ is the area being burned by the fire, which expression for $F(t)$ represents the area of forest still on fire after t hours?

A) $10-(0.93)^{12t}$

B) $10\times(1-0.07)^{\frac{t}{12}}$

C) $10-93^{12t}$

D) 0.93^{10-12t}

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A student took five tests. He scored an average (arithmetic mean) of 80 on the first three tests and an average of 90 on the other two. Which of the following must be true?

I. The student scored more than 85 on at least one test.

II. The average (arithmetic mean) score for all five tests is less than 85.

III. The student scored less than 80 on at least two tests.

A) I only

B) II only

C) I and II

D) II and III

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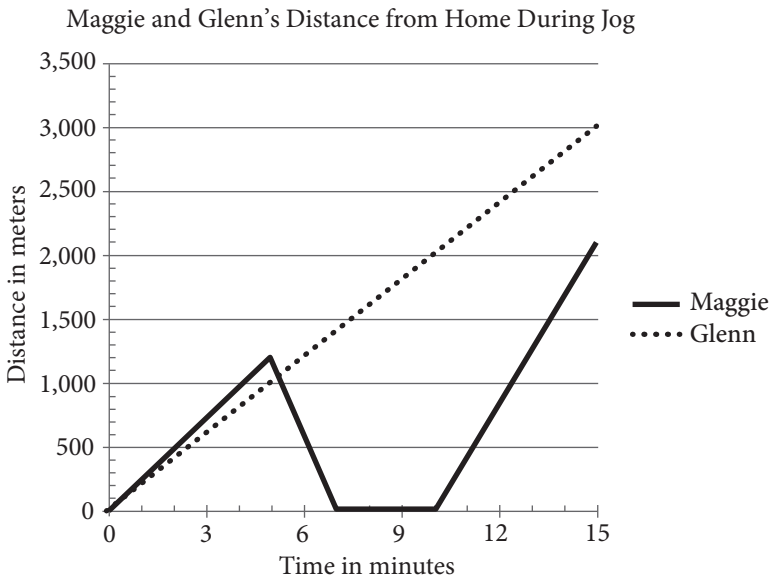

Maggie and Glenn both leave from the same house to go for a jog along a trail. Shortly after leaving, Maggie realizes she forgot her iPhone and returns home to find it before heading back out onto the same trail. The graph above shows how far each of them is from home for the first fifteen minutes of their jogs. Excluding the time she spends at home, which of the following is closest to Maggie's average speed, in meters per second, during the portion of her jog shown?

A) 2.3

B) 5

C) 6.3

D) 140

22

In a political poll, 500 voters were first asked whether they were registered as Democrat, Republican, or Independent. The voters were then asked whether they planned to vote for Candidate A, for Candidate B, or were Undecided. The table below shows the results of the poll.

	Candidate A	Candidate B	Undecided	Total
Democrat	24	56	70	150
Republican	117	70	50	237
Independent	15	18	80	113
Total	156	144	200	500

The number of registered Republicans who plan to vote for Candidate B is what percent greater than the number of registered Democrats who plan to vote for Candidate B ?

A) 14%

B) 20%

C) 25%

D) 28%

25

The college that Everett attends in Chicago is exactly 200 miles from his parents' home. When his parents come to visit him at school, they drive at an average speed of 45 miles per hour for maximum safety. When Everett drives home for winter break, his average speed is x% greater than the average speed at which his parents drive when they make the trip. Which of the following represents the time Everett saves on the 200-mile trip compared with his parents' average time, in hours?

A) $\dfrac{-2x}{45\left(1+\dfrac{x}{100}\right)}$

B) $\dfrac{2x}{45\left(1-\dfrac{x}{100}\right)}$

C) $\dfrac{2x}{45\left(1+\dfrac{x}{100}\right)}$

D) $\dfrac{45\left(\dfrac{x}{100}\right)}{200\left(1+\dfrac{x}{100}\right)}$

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A survey company gathered data regarding people's transportation habits in four major U.S. cities. The survey asked participants in each of these cities to indicate whether they regularly used a personal vehicle, public transportation, or neither to commute. Participants were not limited to one response and could check both personal vehicle and public transportation. The results are shown below.

	Personal Vehicle	Public Transportation	Neither	Total Responses
Washington, D.C.	5,687	3,134	1,232	8,505
New York	2,476	5,738	1,459	7,789
Boston	5,281	3,504	1,025	7,556
San Francisco	4,122	4,629	1,192	7,934

Which one of the following statements is supported by the data shown above?

A) Approximately 20% more people checked both personal vehicle and public transportation in Boston than in New York.

B) Washington, D.C. has the highest proportion of people that regularly use both public transportation and a personal vehicle.

C) The number of people that reported regularly using public transportation in New York is approximately 230% more than the number that reported regularly using a personal vehicle.

D) The ratio of personal vehicle use to public transportation use was lowest in San Francisco.

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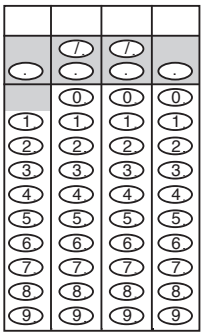
Estimated Numbers of Cell Phone Users by Type
(in millions)

	Prepaid users	Contracted users	Total
2008	45	225	270
2012	75	250	325
Total	120	475	595

If a cell phone user is selected at random in 2008, what is the probability that user is a contracted user?



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Marcia can type 18 pages per hour, and David can type 14 pages per hour. If they work together, how many minutes will it take them to type 24 pages?