MATHS

BOOKS - KAPLAN INC MATHS (ENGLISH)

TWO-WAY TABLES, STATISTIC , AND PROBABILITY

Multiple Choice Question

Number of Graduates by Focus and Year		
School Focus (District 1)	2013	2014
Career and Technical Education	120	115
Fine and Performing Arts	146	151
International Studies	84	104
Science Technology, Engineering and Math STEM	163	163
World Languages	112	117

1.

A magnet school is a free public school that has a fused theme. According to the table above, what was the increase in the total number of graduates in five of these magnet schools in District 1 from 2013 to 2014?

A. 25

B. 30

C. 35

D. 40

Answer: A

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Rating	1	2	3	4	5
Frequency	1	3	5	5	6

2. Many people shop online primarily because they get access to product ratings submitted by fellow

shoppers. The frequency table above gives the most recent 20 customer ratings for a certain product sold online. What is the mean rating for this product?

A. 3.6

B. 3.8

C. 4

D. 5

Answer: A

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3. Phase I clinical trails are run to determine the safely of all new drugs, especially with respect to the severily and duration of side effects. A physician is overseeing a phase I trial based on 8000 heathly participants. Half of the participants are given the drug, and half are given an inert pill. The mean duration of side effects for those participants who were given the drug was 72 hours with a margin of error of 6 hours. The physician is planning to replicate the trial in an attempt to decrease

this margin of error. Which of the following will most likely lead to a decrease in the margin of error for the mean duration of side effects?

A. Decrease the trial size to 400 heathly participants

B. Decrease the trial size to 400 participants and replace half the healthy participants with sick patients

C. Increase the trial size to 1,600 healthy participans

D. Increase the trial size to 1,600 participants, and replace half the healthy participants with sick patients.

Answer: C

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4. In a survey of 1,600 adults in the United States, 48% indicated that television is their primary source of news. The margin of error for the survey is $\pm 2.5\%$. Which value is

outside the interval that is likely to contains the exact percent of all adults in the United States who get the news primarily from telesion?

A. 45

B. 47

C. 49

D. 50

Answer: A

5. A medical practice surveyed a random sample of 80 patients to determine whether their facility should open earlier in the morning or close later in the evening. Of the 80 patients surveyed, 37.5% preferred that the facility open earlier. Based on this information, about how many of the practice's 600 patients would be expected to prefer that the facility open earlier in the morning?

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2015 Unemployment Rates (as a Percent)				
By Age and Gender	Jan.	Feb.	Mar.	Apr.
Men, 16+ years	5.9	5.7	5.6	5.5
Women, 16+ years	5.6	5.4	5.3	5.4
Total, 16+ years	5.7	5.5	5.5	5.4

6.

Unemployment rates in the U.S. for the first

four months of 2015 are given in the table

above. These rates are based on prople, 16

years and order, that are considered to be part

of the workforce. In a certain distinct, there

are 12,800 people eligible to be part of the

workforce, of work 53.5% are men. Based on

the information in the table, how many more

men in this distrinct were unemployed than women in April 2015 in this distinct?

A. 13

B. 56

C. 90

D. 896

Answer: B

7. Luge is a winter sport in which a person slides down an ice track feet first on a small sled. The luger lies supine (on his back) and uses his calf and shoulder muscles to steer the sled. Below is a summary of the times, in seconds, of three luger's practice runs on a track in Utah.

Run	Marcelle	Aaron	Danielle
1	59.209	55.302	56.850
2	57.916	52.631	55.414
3	58.402	57.914	54.650
4	58.808	53.215	55.845
Mean	58.584	54.766	55.670
Std. Dev.	0.554	2.392	0.918

Which of the following conclusions can be drawn based on th data in the table?

A. Aeron performed the least consistently because his mean time is the lowest.

B. Mercelle performed the least consistently because his mean time is the highest

C. Aeron performed the least consistently because his mean time is the highest

D. Mercelle performed the least consistently because his mean time is the lowest.

Answer: D

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8. Frederick is a business major and is conducting a study to determine the effect of having agendas for project meeting at large companies. He surveyed a randomly selected

group of 500 project managers for large
companies in Boston, M.A, and found
substential evidence of an association
between the duration of a project meeting
and whether an agenda was followed. Which
of the following can Frederick conclude from
this information?

A. Use of a meeting agenda causes a
   decrease in meeting time at large
   companies in Boston, M.A.

B. Use of a meeting agenda causes a decrease in meeting time at large companies in United States.

C. There is an association between the use of meeting agenda and the duration of meeting agenda and the duration of meeting at large companies in Boston, M.A.

D. There is an association between the use of meeting agenda and the duration of

meeting agenda and the duration of

meeting at large companies in United

States.

Answer: C

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9. A study of gasoline prices across a particular

state showed that the state's mean gas price

was $2.87 per gallon, and the median gas price

was $3.25 per gallon. Which of the following

most likely accounts for the difference between the mean and median gas prices in this state?

A. A few areas of the state had substantially lower gas prices than the rest.

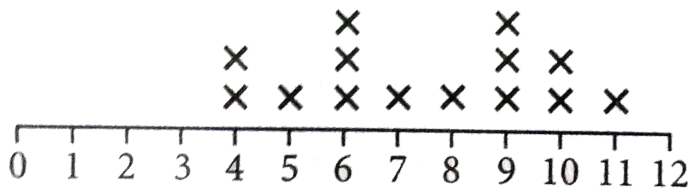B. A few areas of the state had substantially highest gas prices than the rest.

C. The majority of areas of areas in the study has gas prices between $2.87 and $3.25 per gallon.

D. An error was made during data collection or data analysis.

Answer: A

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10.

Brian and several of his work colleagues are on a kickball team together. The dot plot above shows the number of points his team scored during each of 14 games played so far this season. The league's record for highest average points scored per game during a season is 7.5. To break this record, a team's season average must be at least half a point higher. If Brian and his teammates are to set a

new season record, how many points must they average during their final two games?
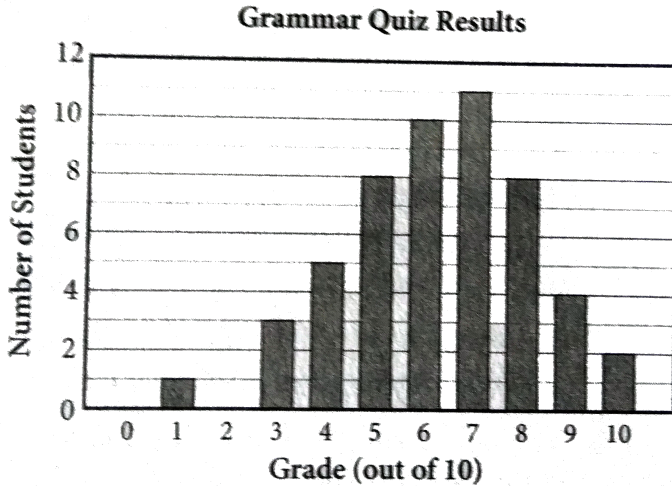
A. 9

B. 12

C. 14

D. 15

Answer: B

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Grammar Quiz Results

11.

The bar graph shows the result of a grammar quiz in a language arts class. What is the difference between the mean and median of the quiz scores? Round your answer to the nearest hundredth.

12. The average gas mileage for n vehicles on one car lot is 21 miles per gallon. The average gas mileage for p vehicles on another car lot is 25 miles per gallon. When the vehicles on both lots are combined, the average gas mileage is 22.5 miles per gallon. What is the value of $\frac{p}{n}$?

A. $\frac{3}{8}$

B. $\frac{1}{2}$

C. $\frac{3}{5}$

D. 1

Answer: C

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13. Five numbers are given by expressions x, $2x - 3, 2x + 1, 3x - 4$ and $3x + 1$. If the average (arithmetic mean) of these number is 10, what is the mode of the numbers?

A. 10

B. 11

C. 12

D. There is not enough information to determine the value of the mode.

Answer: B

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Top Four East Coast Metro Areas for New Job Growth per Capita				
	Metro A	Metro B	Metro C	Metro D
Total jobs added in metro area	94,200	86,350	72,600	66,000
New jobs per 1,000 residents	245	375	250	200

14.

According to the information in the table, which of the following correctly orders the population of the metro areas from greatest to least?

A. A, B, C, D

B. D, C, B, A

C. A, D, C, B

D. A, D, B, C

Answer: C

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	Tropical Storms	Hurricanes	Major Hurricanes (Cat. 3+)	Total
1990–1994	16	23	5	44
1995–1999	5	41	20	66
2000–2004	18	37	18	73
2005–2009	23	37	18	78
Total	91	175	74	340

15.

The table above summarizes strom activity in the Atlantic Ocean between 1990 and 2009.

What portion of the storms between 1990 and 1999 were classified as major hurricanes?

A. 0.1136

B. 0.2176

C. 0.2273

D. 0.8091

Answer: C

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Total	91	175	74	340

16.

The students in an environmental science class will be randomly assingned a storm to research, with no two students researching the same storm. Given that the students will each be assigned a hurricane or a major hurricane for their raports,what is the probability that students will be assigned a storm that occurred prior to 2000?`

A. 0.2618

B. 0.3574

C. 0.6426

D. 0.7324

Answer: B

17.

	A	B	C	D	E	F	G	H
Nonstop	n/a	$340.20	$340.20	$536.20	$380.19	$382.20	$383.95	$429.00
1 + stops	$332.20	$376.70	n/a	$363.19	$395.59	$386.20	$392.45	$493.99

The table above is a summery of prices for round-trip airplane tickets offered by eight

airlines between New York City and San Francisco. What fraction of the non stop flights are under $400?

18.

	A	B	C	D	E	F	G	H
Nonstop	n/a	$340.20	$340.20	$536.20	$380.19	$382.20	$383.95	$429.00
1 + stops	$332.20	$376.70	n/a	$363.19	$395.59	$386.20	$392.45	$493.99

Airlines C and F offer six nonstop flights each to San Francisco throughout the day at the prices shown in the table. Each flights on each airline can hold 170 passengers. If all six of Airlines C's flights are filled to capacity and all

six of Airline E's flights are filled to 90% capacity on a paritcular day, how many more revenue does Airline E generate than Airline C on that day?

A. $1, 005.21

B. $2, 010.42

C. $20, 394.90

D. $40, 789.80

Answer: B

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19.

	$m < 50,000$	$50,000 \leq m \leq 100,000$	$m > 100,000$	Total
2-Door Car	9	22	17	48
4-Door Car	16	48	34	98
SUV	19	35	40	94
Truck	12	27	21	60
Total	56	132	112	300

The table above shows the distribution of vehicles at a used car lot by type and by mileage. According to the data, which type of vehicles on the lot has the smallest percentage with less than 50, 000 miles?

A. 2- door car

B. 4-door car

C. SUV

D. Truck

Answer: B

20.

	$m < 50,000$	$50,000 \le m \le 100,000$	$m > 100,000$	Total
2-Door Car	9	22	17	48
4-Door Car	16	48	34	98
SUV	19	35	40	94
Truck	12	27	21	60
Total	56	132	112	300

Based on the table, if a single vehicles is selected at random from all the vehicles on the lot to be given away in reffle, what is the probability that it will be an SUV or a truck

that has been driven between 50,000 and 100,000 miles?

A. $\dfrac{7}{60}$

B. $\dfrac{11}{25}$

C. $\dfrac{31}{66}$

D. $\dfrac{31}{150}$

Answer: D

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