

Level A - Form 1 - Applied Mathematics: Statistics and Probability

Sample Question

Kelly rolls a six-sided die labeled 1 through 6.
What is the probability that she will roll a 5?

- A $\frac{1}{5}$
- B $\frac{1}{2}$
- C $\frac{1}{6}$
- D $\frac{5}{6}$

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This chalkboard shows the scores students earned on a test in Ms. Smith's night class. Study the list. Then do Numbers 1 through 2.



1. What was the average score of the class?
A 89
B 91
C 75
D 85
2. What was the median of the test scores?
F 91
G 89
H 85
J 75

3. A school cafeteria manager wants to determine which items to include on their menu. Which survey method would yield the most unbiased results?
A Send a survey to all school employees.
B Ask the students as they enter the cafeteria.
C Place a voting box at the entrance to the cafeteria.
D Send a letter home to the parents.
4. The table below shows Yan's score card from his first nine holes of golf. What was Yan's average score per hole?

Hole	Score
1	7
2	4
3	5
4	3
5	6
6	3
7	8
8	4
9	5

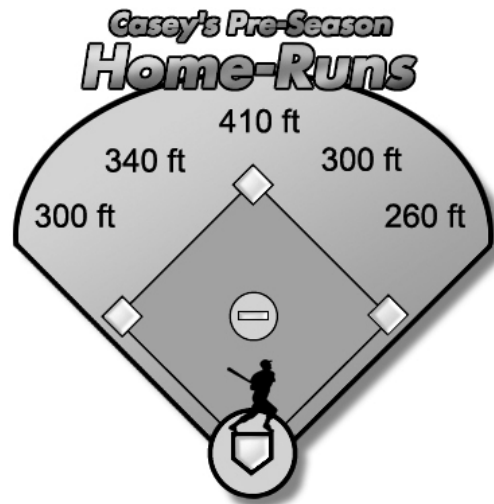
- F 5
G 4
H 7
J 6

5. The chart below shows all the cards in a deck of cards. If you pull a card at random from a deck, what is the probability of getting an ace?

Diamonds ♦	Hearts ♥	Spades ♠	Clubs ♣
Ace	Ace	Ace	Ace
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
10	10	10	10
Jack	Jack	Jack	Jack
Queen	Queen	Queen	Queen
King	King	King	King

- A $\frac{1}{4}$
 B $\frac{1}{52}$
 C $\frac{4}{13}$
 D $\frac{1}{13}$

The diagram shows the distance of the 5 home runs that Casey hit in pre-season games. Study the diagram. Then do Numbers 6 through 7.



6. What was the average distance of Casey's pre-season home runs?
 F 335 ft
 G 300 ft
 H 322 ft
 J 302 ft
7. What was the mode of the distances?
 A 150 ft
 B 300 ft
 C 322 ft
 D 410 ft

Rita sells real estate. The table shows the final sale price of each house Rita sold last month. Study the table. Then do Numbers 8 through 9.



HOUSE PRICES	
	\$310,900
	\$185,600
	\$84,900
	\$274,900
	\$359,500

8. What was the average price of the houses that Rita sold?
- F \$243,160
 - G \$274,900
 - H \$274,600
 - J \$243,100
9. What was the median price of the houses?
- A \$84,900
 - B \$274,900
 - C \$274,600
 - D \$243,160

10. A restaurant runs a weekly contest to give away a free lunch. To enter, you drop a business card in a box. You may enter as many times as you like. A total of 85 business cards were collected last week.

How many business cards did Sandra put in if she had a $\frac{1}{17}$ of winning?

- F 17
- G 18
- H 1
- J 5

11. Joey bought a bag of colored candy. There are 4 blue pieces, 8 green pieces, 12 brown pieces, and 6 yellow pieces. If he picks a piece of candy out of the bag at random, what is the probability that the candy is green?

- A $\frac{1}{4}$
- B $\frac{4}{11}$
- C $\frac{4}{15}$
- D $\frac{1}{30}$

12. At a screening, movie viewers were asked if they would pay to watch the movie at a theater. The table shows the results of that poll.



A clapperboard with a black and white striped top bar. The text on the clapperboard reads "MOVIE SCREENING POLL" in a bold, sans-serif font. Below the title is a table with three columns and two rows. The first row contains the headers "Yes", "No", and "Not Sure". The second row contains the counts "68", "24", and "8".

Yes	No	Not Sure
68	24	8

If a person from the screening audience was selected at random, what is the probability that person had answered "yes"?

- F $\frac{1}{68}$
G $\frac{17}{25}$
H $\frac{1}{68}$
J $\frac{8}{17}$

13. In the fall, Judy planted 3 iris bulbs, 6 daffodil bulbs, and 3 crocus bulbs. When spring came, only one bulb grew. What is the probability that it was a crocus bulb?

- A $\frac{1}{3}$
B $\frac{1}{4}$
C $\frac{1}{12}$
D $\frac{1}{2}$

14. The chart below shows the quantity and colors of the overstock cars in the dealer's lot. The prize in a car dealership's contest is a free car from its overstock.



CAR OVERSTOCK LIST	
Silver	50
White	20
Green	35
Red	15
Blue	30

According to the chart, if the prize car is chosen at random, what is the probability the winner will get a silver car?

- F $\frac{1}{5}$
- G $\frac{1}{2}$
- H $\frac{1}{4}$
- J $\frac{1}{3}$

15. A movie company executive located in Hollywood, California, wants to conduct a pre-screening to know what age group will be more likely to buy tickets for an upcoming nationwide film. What pre-screening audience will give the most accurate, unbiased results?
- A randomly selected Hollywood residents
 - B randomly selected California residents
 - C randomly selected high school students
 - D randomly selected U.S. citizens
16. A member of an employee activity committee wants to see if there is enough interest to start a softball team. Which of the following would yield the most accurate, unbiased results?
- F Call employees at home between 5 P.M. and 8 P.M.
 - G Send out a company-wide e-mail.
 - H Wait in the elevator and ask people as they enter.
 - J Post a questionnaire in the lunch room.

17. A city fire chief wants to determine the average time it takes for a specific fire station to respond to an alarm. What would be the best method for determining the average time it takes the fire fighters to get from that fire station to a building in distress?
- A Stage 5 fire drills in random locations one block from the fire station.
 - B Look at the response time of the last 5 calls.
 - C Stage 10 fire drills in random locations throughout the city.
 - D Have 10 fire alarms at the same location.
18. A candidate for the mayor of a town in Vermont wants to know his chances of winning the next election. What survey would provide the most accurate, unbiased results?
- F Send out questionnaire flyers with the Sunday paper.
 - G Survey people at the local library.
 - H Hold a preliminary vote in the town.
 - J Randomly survey registered voters in Vermont.
19. A city official wants to know approximately what percent of the people who work in the downtown area use public transportation to get to work. The public transportation consists of buses, trains, and ferries. What survey method should be used to collect the most accurate data?
- A Survey people at the entrances to the buildings in the downtown area.
 - B Count the number of vehicles that go through the toll booths between 6 A.M. and 10 A.M.
 - C Count the number of public transportation passes sold per month.
 - D Survey households in the surrounding towns.
20. A town officer wants to know how many people are in favor of building a new stadium with revenue from a tax increase. What method would provide a random, unbiased survey?
- F Place a questionnaire in the sports section of the Sunday paper.
 - G Set up a questionnaire booth after a game at the old stadium.
 - H Place random calls to people in the phone book.
 - J Place calls to all the season ticket holders.