



MCAS OLYMPICS

Event: Percent/Probability Pole-Vaulting.

1. What is 30% of 600?

2. The Adams Middle School girls' basketball team won 5 games and lost 3 games. What percent of all of these games did the team **lose**?

a. 30% b. 37.5% c. 60% d. 62.5%

3. There are a total of 500 students at Lincoln Middle School. The table below shows the number of students who are members of 0, 1, 2, 3, or 4 clubs.

Members of Student Clubs

Number of Clubs (<i>n</i>)	Number of Students Who Are Members of <i>n</i> Clubs
0	300
1	110
2	60
3	20
4	10

- Based on the table, what percent of the 500 students are members of 2 or more clubs?
- a. 12% b. 18% c. 90% d. 94%

4. In a citywide survey, bicycle owners were asked how many bicycles they owned, and whether any had been stolen during the previous year. The results indicated that people in the city owned 9017 bicycles and, of these, 450 had been stolen. Based on this information, which conclusion is most reasonable?

- a. No bicycle owners will have their bicycles stolen this year.
- b. All bicycle owners will have their bicycles stolen this year.
- c. The probability that any one bicycle will be stolen is about $\frac{1}{5}$
- d. The probability that any one bicycle will be stolen is about $\frac{1}{20}$

5. A group of 36 people from Nantucket Recreation Center plans to purchase tickets for a cruise to Bermuda. The standard fare for an individual ticket is shown below.

Cruise Price	
	Standard Fare
Individual Ticket Price	\$1200

The group is informed that, because of the size of the group, the standard fare will be reduced by 30%. With the discount of 30%, how much does **each** member of the Nantucket Recreation Center have to pay for a cruise ticket?

- a. \$360 b. \$432 c. \$768 d. \$840

6. In Mr. Montgomery's class, there are 8 boys and 12 girls. If Mr. Montgomery selects 1 student from his class at random, what is the probability that the student will be a girl?

- a. $\frac{2}{3}$ b. $\frac{3}{5}$ c. $\frac{1}{12}$ d. $\frac{1}{20}$

7. Martin correctly answered 90% of the questions on a math test that contained exactly 40 questions. How many questions did he answer **incorrectly**?

- a. 4 b. 10 c. 44 d. 90

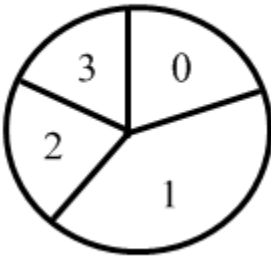
8. Stephanie conducted a survey to determine the number of siblings that each of her classmates has. The data appears in the table below.

Number of Siblings	Classmates Having That Number of Siblings
0	
1	
2	
3	

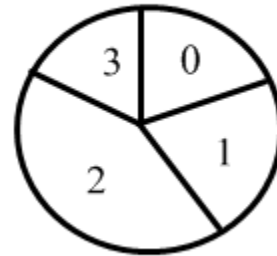
Which of the following circle graphs best represents the data in the table?

Comparison of Classmates by Number of Siblings

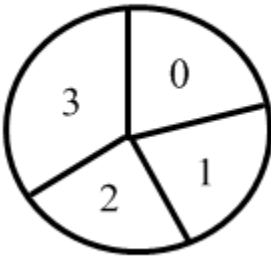
a.



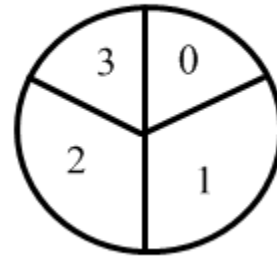
b.



c.



d.



9. Mr. Johnson noted that $\frac{3}{8}$ of the students at his school were in the band. He also noted that $\frac{1}{2}$ of the students in the band were girls. What fraction part of the students at the school were girls in the band?

10. The table below shows Patrick’s results on a 25-question history test.

Results of Patrick’s History Test

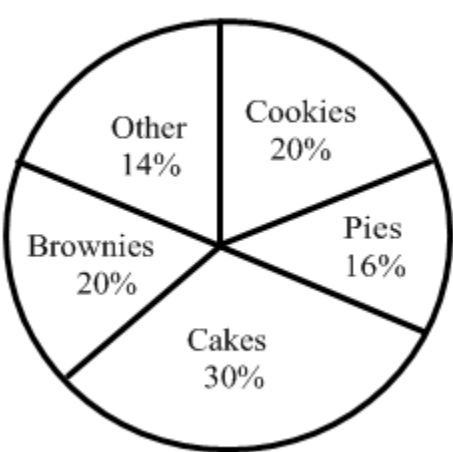
	Multiple-Choice Questions	True-False Questions
Number of Questions Answer Correctly	14	6
Number of Questions Answer Incorrectly	1	4

Of the questions Patrick answered **correctly** what percent were true-false questions?

- a. 30% b. 40% c. 42% d. 67%

11. The circle graph below shows the percentages of people who brought each type of baked good to sell at a recent bake sale.

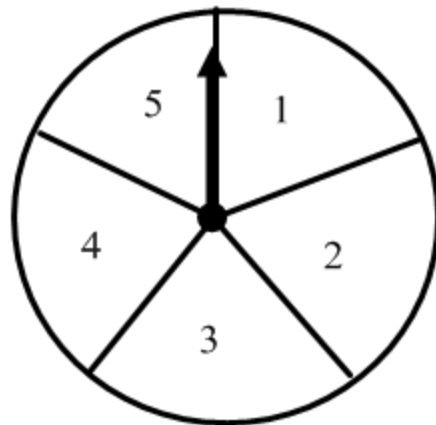
**Percentage of People
Bringing Baked Goods**



If 15 people brought cakes to sell, what is the total number of people who brought baked goods to sell at the bake sale?

- a. 45 b. 50 c. 70 d. 75

12. To win a game, Yepa must spin two odd numbers in a row on her next two spins of the arrow on the spinner shown below. All sections of the spinner are of equal size.



What is the probability that the results of Yepa's next two spins will both be odd numbers?

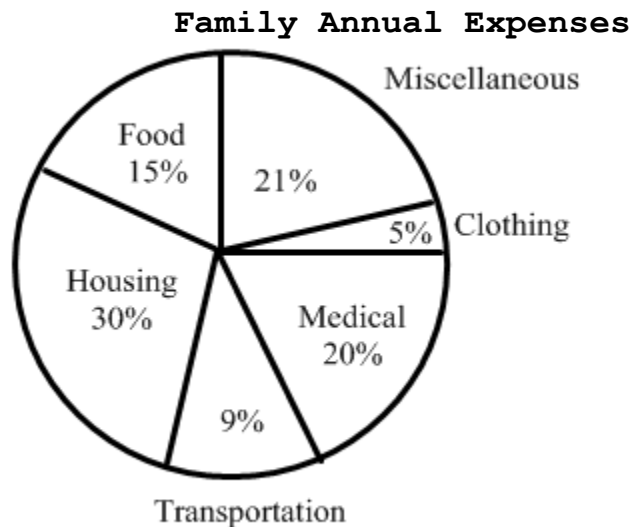
13. Sam's Pizza offers the luncheon special shown in the advertisement below.

SAM'S PIZZA LUNCHEON SPECIAL <i>\$5.99</i>		
Choose One Entree, One Salad, One Drink		
<u>Entrees</u>	<u>Salads</u>	<u>Drinks</u>
Pizza	Tossed Green	Coffee
Sandwich	Ceasar	Iced Tea
Hot Plate		Soda

How many combinations of one entrée, one salad, and one drink are possible for the luncheon special?

14. Frank has 2 Massachusetts quarters and 3 "Eagle" quarters in his pocket. He will select a quarter at random, look at it, and put it back. Then he will select another quarter at random. What is the probability that Frank will select a Massachusetts quarter both times?

15. The graph below shows a family's annual expenses.



If the family's annual income is \$40,000, what is the family's annual expense for housing?

- a. \$120 b. \$3,000 c. \$12,000 d. \$30,000

16. Franco has a bag with four letter tiles in it. All of the tiles are the same size and shape, as shown below.



One face of each tile has a letter on it, and the other faces are blank. Franco will select a tile at random, record the letter, and put the tile back. If he does this two times, what is the probability that Franco will select a T and then a B?

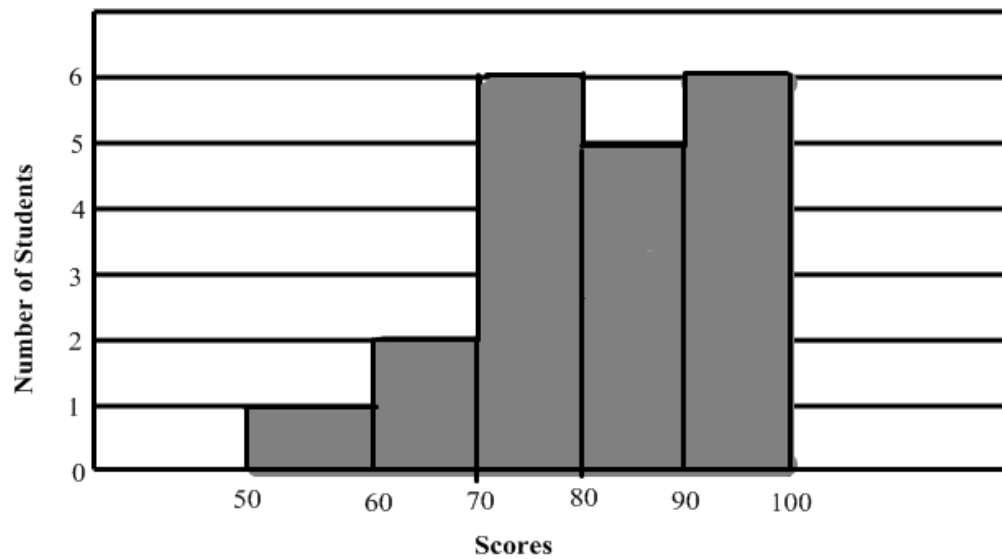
- a. $\frac{1}{16}$ b. $\frac{1}{12}$ c. $\frac{1}{4}$ d. $\frac{1}{2}$

17. The list below shows the interest rates for car loans at four different car dealerships.

$7\frac{1}{2}\%$	7.4%	$7\frac{3}{8}\%$	7.2%
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List the interest rates in order from least to greatest.

18. The histogram below shows the scores for all the students who took a mathematics quiz.



What percent of the students received a score of 80 or above?

- a.** 55% **b.** 40% **c.** 25% **d.** 11%

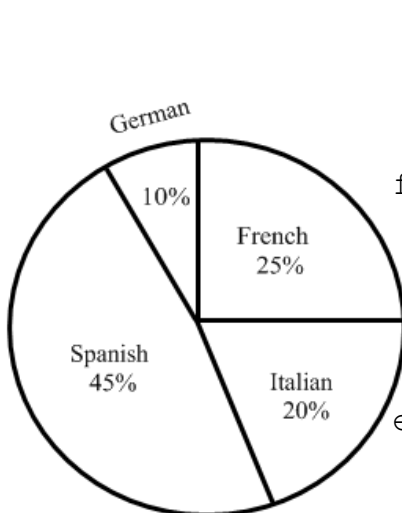
19. Ruben surveyed 180 students in his school to find each student's favorite winter sport. He recorded his results in the circle graph shown below.



Based on Ruben's graph, what is the total number of students whose favorite sport was either snowboarding or snow skiing?

- a. 117 b. 115 c. 90 d. 65

20. The circle graph below shows the percent of students enrolled in each of four foreign language classes being offered at a school.



- No student is enrolled in more than one foreign language class.
- The number of students enrolled in Italian is 36.

Based on the graph and the given data, what is the total number of students enrolled in foreign language classes?

- a. 72 b. 100 c. 116 d. 180

21. Colin plans to order three types of skateboard parts. He plans to order a total of ten parts. He can order online from Tony's Skateboard Shop, or he can order from a local store.

Colin's online order from Tony's Skateboard Shop is shown in the order form below.

<i>Tony's Skateboard Shop Order Form</i>			
Type of Part	Price Per Unit	Units Ordered	Cost
Truck	\$8.95	2	
Wheel	\$6.95	4	
Package of Bearings	\$2.45	4	
Subtotal			
Online Discount			-\$2.00
Subtotal After Discount			
Sales tax(5% of the Subtotal After Discount)			
Total payment due			

Use the order form above to answer parts, a, b, and c.

- The Subtotal amount is the total cost of all ten parts before any discount or tax. What is the Subtotal amount for the ten parts the Colin plans to order? Show your work or explain your answer.
- By ordering online from Tony's Skateboard Shop, Colin is entitled to an Online Discount of \$2.00 off the Subtotal amount. Sales Tax of 5% is added to the Subtotal After Discount. What is the Total Payment Due if Colin orders online from Tony's Skateboard Shop? Show your work or explain your answer.
- Colin learns that the local store can provide the same ten parts, each one at the same Price per Unit that Tony's Skateboard Shop charges, but the local store will give Colin a 20% discount on the Subtotal amount. After this discount, Colin will still need to pay a Sales Tax of 5%. If Colin orders from the local store, how much less will Colin pay for the skateboard parts than if he ordered the same parts online from Tony's Skateboard Shop?

22. The manager of a new car dealership is ordering a new car. The options for the new car are shown in the table below.

Options for New Car

Categories	Options
Color	White Red Silver
Roof Style	Hard Top Convertible
Number of Doors	2 doors 4 doors

The manager decides to let his computer randomly select one option for each of the three categories in the table.

- Based on the table, what is the total number of combinations of 1 color, 1 roof style, and 1 number of doors that can be selected for the new car? Show or explain how you got your answer.
- What is the probability that the computer will select a hard top for the new car? Show or explain how you got your answer.
- What is the probability that the computer will **not** select white for the new car's color? Show or explain how you got your answer.
- What is the probability that the computer will select for the new car to **both** be silver and have 2 doors? Show or explain how you got your answer.