

BCR

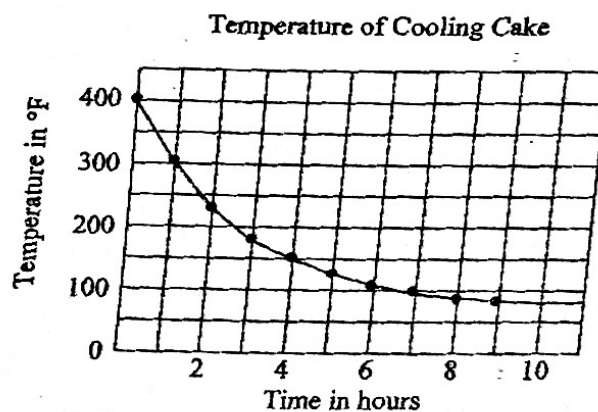
31. Terry is going to the county fair. She has two choices for purchasing tickets, as shown in the table below.

Ticket Choices	Admission Price	Cost per Ride
A	\$5	\$0.50
B	\$3	\$0.75

- Write an equation for Terry's total cost (y) for ticket Choice A. Write an equation for Terry's total cost (y) for ticket Choice B. Let x represent the number of rides she plans to go on.
- How many rides would Terry have to go on for the total cost of ticket A and ticket B to be equal? Use mathematics to explain how you determined your answer. Use words, symbols, or both in your explanation. (If you choose to draw a graph, use the grid provided.)

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32. Look at the graph below.



The graph above models the temperature of a cake after it was taken out of a hot oven. Approximately how many hours will it take for the cake to cool to 200°F?

33. In 1995, there were 650 students at Churchill High School. In 2005, there were 900 students. Find the rate of change from 1995 to 2005.

34. Mei Ling collected data while riding the local bus system for 1 day at 2 different time spans. She collected the ages of 140 different passengers. This is the data she collected.

Age of Passenger	Frequency
Morning	
1 year to 10 years	
11 to 15 years	
16 to 20 years	
21 and over	
Afternoon	
1 year to 10 years	
11 to 15 years	
16 to 20 years	
21 and over	

Mei Ling found out the average number of passengers any given morning or afternoon is about 400. How many passengers could be expected to be 21 or over on any given day?

35. A computer chip manufacturer estimates that there is a probability of $\frac{1}{2}$ that an individual chip will be defective. What type of simulation model could simulate this probability?

~~Roll a six-sided number cube and assign the following labels:~~

~~Defective Chip =~~

~~Not Defective Chip =~~

~~Roll a six-sided number cube and assign the following labels:~~

~~Defective Chip = {1, 2, 3, 4}~~

~~Not Defective Chip = {5, 6}~~

Select digits from a random number table and assign the following labels:

Defective Chip = {0, 1, 2}

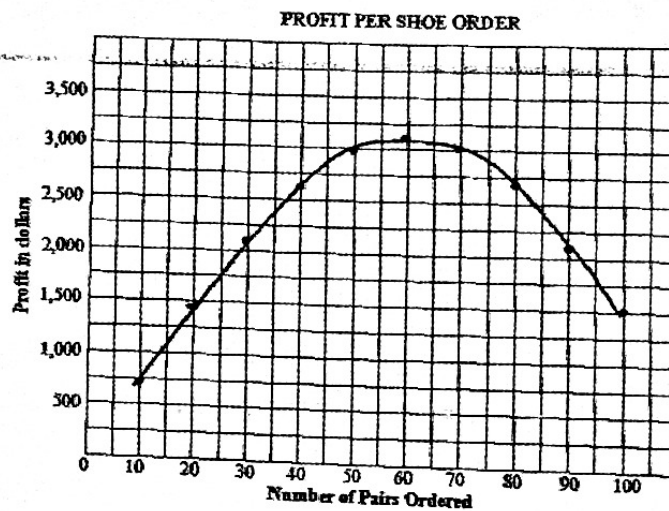
Not Defective Chip = {3, 4, 5, 6, 7, 8, 9}

Select digits from a random number table and assign the following labels:

Defective Chip = {0, 1, 2, 3, 4, 5, 6}

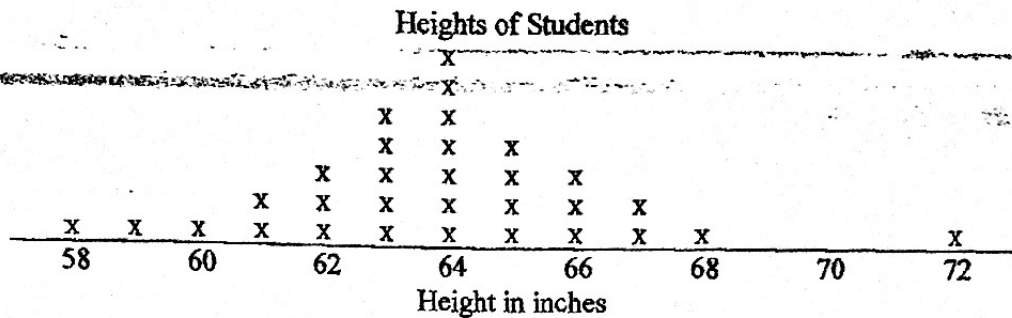
Not Defective Chip = {7, 8, 9}

36. The profit that a shoe manufacturer makes is related to the number of pairs of shoes ordered, as shown in the graph below.



How many pairs of shoes must be ordered for the manufacture to make \$3000 profit?
Is this the maximum profit?

37. The line plot below shows the heights of thirty-one students in a math class.



How many students have a height that is below the median?

38. There are currently 1000 bacteria in a heated pool. If the population of bacteria triples each hour, how many bacteria will there be in 5 hours?

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39. The radius of a cone can be found using the equation below:

$$r = \sqrt{\frac{3V}{\pi h}}, \text{ where } V = \text{Volume, } h = \text{height}$$

If the Volume of a Cone is 55 cm^3 and the height of the cone is 2cm, what is the approximate length of the radius?

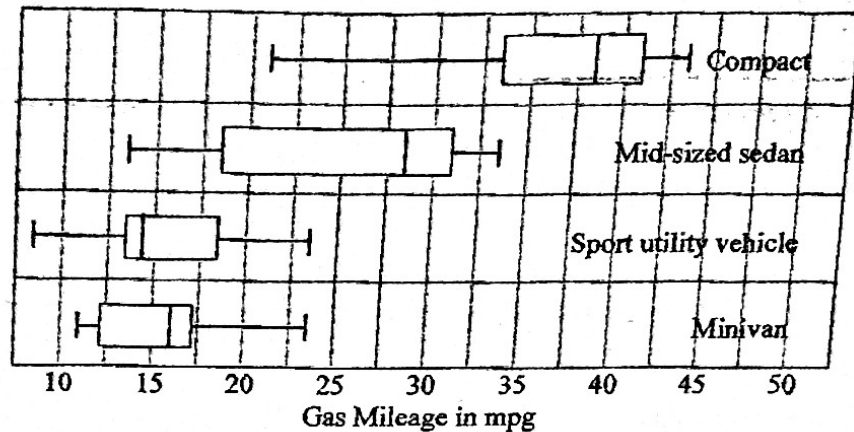
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40. The table shows the maximum heart rate for various ages while running. If the change in heart rate continues at this rate find the maximum pulse rate for a 50 year-old man while running.

Age (yr)	20	30	40	50
Heart Rate	175	166	157	148

41. Which of the following represents the factored form of the quadratic function $x^2 - 4x - 45$?

42. The box-and-whisker plots below compare the gas mileage of vehicles in different auto classes.



Which class of vehicles has the ~~highest~~ median gas mileage?

- F. Compact
 - G. Mid-sized sedan
 - H. Sport utility vehicle
 - J. Minivan
43. Tyesha found that 72% of the 70 band students in music class owned a musical instrument. Since there are 1200 students in her school she concludes there are 864 students in the school that own a musical instrument. Which of the following best describes the reason her conclusion is invalid?
- A. The sample size is too small.
 - B. Every student in the school should have been surveyed.
 - C. Incorrect arithmetic computation
 - ~~D. Biased sampling~~

44. Jane has several varieties of fish that live in her aquarium. There are 4 clownfish, 2 angelfish, 1 butterfly fish, and 3 puffer fish living in the tank. Jane wants to give her friend a fish. She randomly selects a fish from her tank.

What is the probability that the fish Jane selects is a clownfish?

45. The formula below can be used to find the distance (d) traveled by an object, where v represents the initial velocity of the object, t represents the time, in seconds, and a represents the acceleration, in meters per second squared.

$$d = vt + \frac{1}{2}at^2$$

A bicycle traveling at a velocity of 4.5 meters per second for 10 seconds travels the distance of 70 meters. What is the acceleration, in meters per second squared, that the bicycle travels?

- A. 0.39 meters per second squared
- B. 0.62 meters per second squared
- C. 1.37 meters per second squared
- D. 1.89 meters per second squared