

1. Twenty high school students took an examination and received the following scores: 70, 60, 75, 68, 85, 86, 78, 72, 82, 88, 88, 73, 74, 79, 86, 82, 90, 92, 93, 73  
Determine what percent of the students scored within one standard deviation of the mean. Do the results of the examination approximate a normal distribution?

1.

2. In a certain school district, the ages of all new teachers hired during the last 5 years are normally distributed. Within this curve, 95.4% of the ages, centered about the mean, are between 24.6 and 37.4 years. Find the mean age and the standard deviation of the data.

2.

3. The amount of ketchup dispensed from a machine at Hamburger Palace is normally distributed with a mean of 0.9 ounce and a standard deviation of 0.1 ounce. If the machine is used 500 times, approximately how many times will it be expected to dispense 1 or more ounces of ketchup?

(1) 100

(2) 5

(3) 80

(4) 16

3.

4. The probability that a planted watermelon seed will sprout is  $\frac{3}{4}$ . If Peyton plants seven seeds from a slice of watermelon, find, to the *nearest ten thousandth*, the probability that *at least* five will sprout.

4.

5. Find, to the *nearest hundredth*, the *sample* standard deviation for the following set of data:  
6, 12, 14, 19, 24, 36

6. If the range of a set of data is 40 and the highest score is 50, what is the lowest score?

5.

6.

7. A traffic light on Hempstead Turnpike is green for 40 seconds, yellow for 5 seconds, and red for 15 seconds out of every minute. What is the probability that at least 4 of the next 5 cars get a green light?

7.

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8. Find the third term of the expansion  $(1 + \pi)^5$ .

8.

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9. In  $\triangle CTH$ ,  $m\angle C = 17$ ,  $c = 12$ , and  $h = 31$ .
- How many distinct triangles  $CTH$  are possible?
  - Find all possible measures of  $\angle H$  to the nearest degree.
  - Find all possible lengths of  $\overline{CH}$  to the nearest integer.
  - Sketch all possible triangles.

9.

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