

Name Key Date \_\_\_\_\_ Period \_\_\_\_\_ Assignment # \_\_\_\_\_

## 11.1-11.3 Review Worksheet

In #1–3, a normal distribution has mean  $\mu$  and standard deviation  $\sigma$ . Find the indicated probability for a randomly selected  $x$ -value from the distribution. Draw, label and shade a sketch of the normal distribution curve for each problem.

1.  $P(x \leq \mu + \sigma)$

0.84

2.  $P(x \geq \mu + 2\sigma)$

0.025

3.  $P(\mu - 3\sigma \leq x \leq \mu)$

0.4985

In #4–6, a normal distribution has a mean of 32 and a standard deviation of 4. Find the probability that a randomly selected  $x$ -value from the distribution is in the given interval. Draw, label and shade a sketch of the normal distribution curve for each problem.

4. between 20 and 36

0.8385

5. at least 44

0.0015

6. at most 40

0.975

#7-8: The scores on a history test are normally distributed with a mean of 72 and a standard deviation of 8.1. Use the standard normal table below to answer the following questions.

Standard Normal Table										
z	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
-3	.0013	.0010	.0007	.0005	.0003	.0002	.0002	.0001	.0001	.0000+
-2	.0228	.0179	.0139	.0107	.0082	.0062	.0047	.0035	.0026	.0019
-1	.1587	.1357	.1151	.0968	.0808	.0668	.0548	.0446	.0359	.0287
-0	.5000	.4602	.4207	.3821	.3446	.3085	.2743	.2420	.2119	.1841
0	.5000	.5398	.5793	.6179	.6554	.6915	.7257	.7580	.7881	.8159
1	.8413	.8643	.8849	.9032	.9192	.9332	.9452	.9554	.9641	.9713
2	.9772	.9821	.9861	.9893	.9918	.9938	.9953	.9965	.9974	.9981
3	.9987	.9990	.9993	.9995	.9997	.9998	.9998	.9999	.9999	1.0000-

7. About what percent of students have scores less than 68? Round your answer to the nearest tenth.

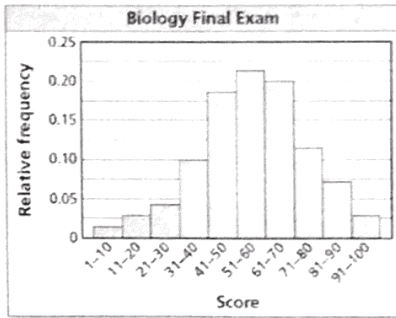
30.9%

8. About what percent of students have scores greater than 90? Round your answer to the nearest tenth.

1.4%

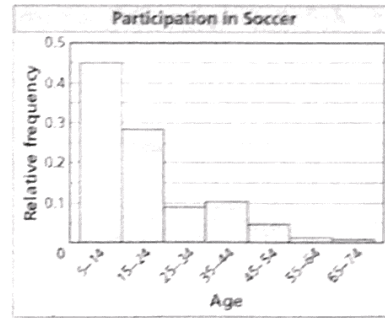
#9-10: Determine whether the histogram has a normal distribution. If not, describe the skew.

9.



Yes, approximately normal.

10.



No, skewed right.

11. A survey of 1654 high school seniors in the United States determined that 1125 plan to attend college. Identify the population and the sample. Describe the sample.

Population: All H.S. seniors in the U.S.

Sample: The 1654 H.S. seniors who were surveyed.  
The sample consists of 1125 H.S. seniors who plan to attend college and 529 H.S. seniors who don't plan to attend college.

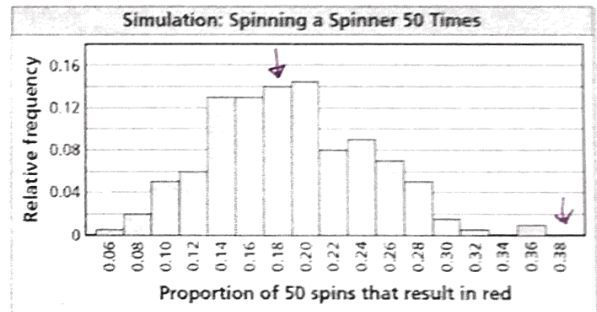
12. A survey of all employees at a company found that the mean one-way daily commute time to work of the employees is 25.5 minutes. Is the mean time a parameter or a statistic? Explain your reasoning.

Parameter; all employees were surveyed.

13. Over a 10-minute period, an administrator counts the number of students entering the main building at Cal High who are in violation of the new school dress code. Identify the method of data collection.

Observational study.

14. You spin a five-color spinner, which is divided into equal parts, five times and every time the spinner lands on red. You suspect the spinner favors red. The maker of the spinner claims that the spinner does not favor any color. You simulate spinning the spinner 50 times by repeatedly drawing 200 random samples of size 50. The histogram shows the results. Use the histogram to determine what you should conclude when you spin the actual spinner 50 times and the spinner lands on red (a) 9 times and (b) 19 times.



a)  $\frac{9}{50} = 0.18$ ; the maker's claim is probably true

b)  $\frac{19}{50} = 0.38$ ; the maker's claim is probably false

15. A local TV station wants to find the number of hours per week people in the region watch sporting events on TV. The station surveys people at a nearby sports stadium.

a. Identify the type of sample described. Convenience

b. Is the sample biased? Explain your reasoning.

Yes; people at the stadium are more likely to watch sporting events on TV than other people.

c. Describe a method for selecting a random sample of 200 people to survey.

Get a list of all people in the region. Assign each person a consecutive integer from 1 to the total # of people. Generate 200 different integers between 1 and the total #. Contact and survey the people who correspond to the 200 random integers.