

## Probability & Statistics Chapter 5 Test Review

**Find the indicated probability for the z-scores.**

1.  $P(z < -2.19)$
2.  $P(1.38 < z < 2.99)$
3.  $P(z > -1.07)$

**Find the z-score that is at the**

4. 80th percentile
5. 10th percentile

**Jane takes between 30 and 60 minutes every day to drive to work. Assume her driving times are spread evenly over the range of possibilities so that there is a uniform distribution. If a work day is randomly selected, find the probability the drive time is**

6. more than 41 minutes
7. between 37 and 54 minutes

**Assume IQ scores are normally distributed with a mean of 100 and a standard deviation of 15.**

8. Find the probability that an individual is randomly chosen and has an IQ score of more than 120.
9. What is the IQ score that is at the 95th percentile?
10. If 20 people are randomly selected, what's the probability that their mean IQ score is more than 110?
11. What is the IQ score that is at the 25th percentile?

**Weights of newborn babies in the US are normally distributed with a mean of 3420g and a standard deviation of 495g. A newborn weighing less than 2200g is considered to be at risk.**

12. What **percentage** of newborn babies are in the "at-risk" category?
13. Using the percent from #12, if 500 babies are born a year at General Hospital, how many of them are "at risk?"
14. What weight represents the 80th percentile?
15. If 25 babies are randomly selected, what's the probability that their mean weights will be less than 3400 g?

**Scores for a biology test are normally distributed with a mean of 77 and a standard deviation of 2.3. Suppose 12 students are randomly selected. What's the probability that their mean score is**

16. more than 79?
17. less than 74?
18. between 78 and 80?

Answers (second review sheet)

1. ,0143
2. .0824
3. .8577
4.  $z = 0.84$
5.  $z = -1.28$
6. .633
7. .567
8. .0918
9. 124.675 or 125
10. .0014 or .00144
11. 89.95 or 90
12. .69%
13.  $500 \times .0069$  about 3 babies
14. 3835.8 g or 3835 g
15. .421
16. .0013 or .00131
17. .0001 or .00000309
18. .0655