

## Math 130: Introductory Statistics

### Worksheet 2

#### Z-scores

Use the following information about newborn weights ( $y$ ) to answer questions 1-4.

$$\sum_{i=1}^n y_i = 820 \quad \sum_{i=1}^n y_i^2 = 7000$$

1. Find the z-score for a baby that weighs of 11 pounds.
2. Find the z-score for a baby that weighs 7 pounds.
3. If the distribution of weights is bell shaped, what is the probability that a baby weighs more than 11 pounds?
4. If the distribution of weights is bell shaped, what is the probability that a baby weighs more than 5.41 pounds?

#### Probability

1. Ignore the existence of leap years. What is the probability that someone is born in June.
2. What is the probability that someone is born on leap day, February 29?
3. Suppose out of a sample of 45 adults who are at least 30 years old, 13 have college degrees. What is the probability that one of the individuals *does not* have a college degree.
4. Suppose  $P(A) = 0.6$ ,  $P(B) = 0.7$ , and  $P(A \cap B) = 0.5$  What is  $P(A \cup B)$ ?
5. Suppose  $P(A) = 0.2$ ,  $P(B) = 0.8$ , and  $P(A \cup B) = 0.9$  What is  $P(A \cap B)$ ?
6. Suppose  $P(A) = 0.3$ . What is  $P(A \cup \bar{A})$ ?
7. Suppose  $P(A) = 0.6$ . What is  $P(A \cap \bar{A})$ ?