

Z-Scores Worksheet

1. The following scores were obtained as part of a sample with mean 10 and standard deviation 2. For each score, find the appropriate z-score:

$$X = 10: z =$$

$$X = 14: z =$$

$$X = 20: z =$$

$$X = 6: z =$$

$$X = 18: z =$$

$$X = -1: z =$$

2. For each z-score found in the first problem, use the table in the appendix, pages 592 etc., to find the probabilities (in percent) of obtaining a score *less than or equal to* the computed z-score. Note: in mathematical notation this means that we want to find $P(z \leq z_0)$, where z_0 is the computed z-score. **Careful:** *the numbers in the table do **not** give you $P(z \leq z_0)$ directly!*

3. Each score listed below comes from a sample with the indicated mean and standard deviation. Convert each one to a z-score and find the indicated probability (in percent):

$$X = 9 \text{ (mean 3, standard deviation 3), } P(x \geq 9)$$

$$z_0 =$$

$$P(z \geq z_0) =$$

$$X = 6 \text{ (mean 3, standard deviation 1.5), } P(x \leq 6)$$

$$z_0 =$$

$$P(z \leq z_0) =$$

$$X = 2 \text{ (mean 0, standard deviation 1), } P(-2 \leq x \leq 2)$$

$$z_0 =$$

$$P(-z_0 \leq z \leq z_0) =$$

$$X = 2 \text{ (mean 3, standard deviation 1), } P(x \geq 2)$$

$$z_0 =$$

$$P(z \geq z_0) =$$

Note that drawing a picture will help to find the indicated probabilities (percentages).