

Problem Solving

Quiz #10—Tuesday April 11, 2006

Name: Solution Key

In a given paragraph taken from a newspaper article,

- 7% of words are single-letter (e.g. 'a');
- 8% of words are two-letter (e.g. 'of');
- 13% of words are three-letter (e.g. 'the');
- 26% of words are four-letter (e.g. 'said');
- 20% of words are five-letter (e.g. 'today');
- 15% of words are six-letter (e.g. 'common');
- 11% of words are seven-letter (e.g. 'Wyoming');
- no words have more than seven letters.

What is the expected value of the number of letters in a word selected randomly from this paragraph?

$$0.07 \times 1 = 0.07$$

$$0.08 \times 2 = 0.16$$

$$0.13 \times 3 = 0.39$$

$$0.26 \times 4 = 1.04$$

$$0.20 \times 5 = 1.00$$

$$0.15 \times 6 = 0.90$$

$$0.11 \times 7 = 0.77$$

$$\text{Total} = \underline{4.33} = \text{expected number of letters in a randomly selected word}$$