

Math 206 - Quiz 3

February 9, 2011

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (2 points) Lisbeth can solve 6 problems in 20 minutes. How many problems can she solve in 90 minutes? Use and describe two different strategies for solving this problem.

① UNIT RATE APPROACH:

$$\frac{6 \text{ PROBS}}{20 \text{ MIN}} = \frac{3 \text{ PROBS}}{10 \text{ MIN}}$$

$$\Rightarrow \frac{27 \text{ PROBS}}{90 \text{ MIN}}$$

② SCALE FACTOR:

$$20 \times 4.5 = 90$$

$$\Rightarrow 6 \times 4.5$$

$$= 27 \text{ PROBS}$$

③ CROSS MULTIPLY:

$$\frac{6}{20} = \frac{X}{90} \Rightarrow X = \frac{6(90)}{20} = 27$$

27 PROBS

2. (2 points) A letter is selected at random from the following box:

L A F F Y T A F F Y

- (a) What is the event of selecting a letter from the second half of the alphabet?

Assuming SAMPLE SPACE = $\{L, A, F, Y, T\}$,

THE EVENT IS $\{Y, T\}$

- (b) What is the probability of selecting the letter F? Is your answer an experimental probability or a theoretical probability?

4 F's OUT OF 10 LETTERS. ASSUMING EACH LETTER IS EQUALLY LIKELY THE PROB IS $\frac{4}{10}$.

THIS IS THEORETICAL.

3. (1 point) A card is selected at random from a standard deck of playing cards. Explain how you would assign an experimental probability to the event of drawing a red face card.

TO ASSIGN THE PROBABILITY, YOU MUST DO (OR SIMULATE)

THE EXPERIMENT. SELECT A CARD AT RANDOM FROM A DECK. IF A RED FACE CARD, COUNT IT AS A FAVORABLE OUTCOME. REPLACE THE CARD AND DO IT AGAIN. REPEAT

A BUNCH OF TIMES. EXP PROB = $\frac{\# \text{ OF FAVORABLE OUTCOMES}}{\# \text{ OF TRIALS}}$