

# Math 206 - Quiz 2

February 3, 2010

Name key

Score \_\_\_\_\_

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

1. (1 point) A grasshopper can jump 20 times its length. If jumping ability in humans was proportional to a grasshopper's, how far could a 6-ft tall person jump?

$$\frac{1 \text{ LENGTH}}{20 \text{ LENGTHS}} = \frac{6 \text{ FT}}{X} \quad X = 6(20) \text{ FT}$$

$$X = 120 \text{ FT}$$

2. (2 points) The ratio of the length to the width of a picture frame is 7 : 5. Find the width of the frame if its length is 32 in. After you have found the width, write all four different proportions that model the problem situation.

$$\frac{l}{w} = \frac{7}{5} = \frac{32}{x} \Rightarrow 7x = 160 \Rightarrow X = \frac{160}{7} = 22.86 \text{ IN}$$

Four proportions:

$$\frac{7}{5} = \frac{32}{x}, \quad \frac{5}{7} = \frac{x}{32}, \quad \frac{7}{32} = \frac{5}{x}, \quad \frac{32}{7} = \frac{x}{5}$$

3. (1 point) A letter is drawn at random from the word MATHEMATICS. What is the probability of drawing a vowel?

$$\text{EVENT OF DRAWING A VOWEL} = \{A_1, E, A_2, I\}$$

$$\text{FOUR FAVORABLE OUTCOMES} / 11 \text{ TOTAL OUTCOMES}$$

$$\text{PROB OF VOWEL} = \frac{4}{11}$$

4. (1 point) John and Sally run a landscaping business. John can mow 3 yards in 2 hours, while Sally can mow 4 yards in 3 hours. Working together, how long would it take them to mow 2 yards?

$$\frac{3 \text{ YARDS}}{2 \text{ HOURS}} + \frac{4 \text{ YARDS}}{3 \text{ HOURS}} = \frac{9 \text{ YOS}}{6 \text{ HRS}} + \frac{8 \text{ YOS}}{6 \text{ HRS}} = \frac{17 \text{ YOS}}{6 \text{ HRS}}$$

$$\frac{17 \text{ YOS}}{6 \text{ HRS}} = \frac{2 \text{ YOS}}{X}$$

$$X = \frac{12}{17} \text{ HRS}$$