Name: KEY

Math 1040-001 Quiz 6 April 11, 2016

The height of men (in inches) is normally distributed with:

$$\mu = 69.4$$
$$\sigma = 3$$

Using the table provided, answer the following two questions:

1. What percent of men are under 64 inches (5'4") tall?

(a) (5 points) Find the z-score for 64 inches using:

$$z = \frac{x - \mu}{\sigma}$$
$$z = \frac{64 - 69.4}{3} = -1.8$$

(b) (5 points) Find the probability corresponding to this z-score using the table, and convert to percent by multiplying by 100%.

$$.0359 \cdot 100\% = 3.6\%$$

Only 3.6% of men are under 5'4'' tall!

Turn over the Quiz to see Problem 2!

2

2. What height corresponds to the 90th percentile?

(a) (5 points) Convert 90% to 0.90 and look up the z-score.

$$z = 1.28$$

(b) (5 points) Convert the z-score to a height using the data:

 $\mu = 69.4$ $\sigma = 3$

and the formula:

$$x = z \cdot \sigma + \mu$$

x = (1.28)(3) + 69.4 = 73.24 The 90th percentile for men's height is: $6'1 \ 1/4''$