

# Finite Mathematics (Math 10120), Spring 2018

Quiz 5, Monday April 16

Name: SOLUTIONS

1. (5 pts) Justin Yoon successfully makes 25% of his field goal attempts from 50 yards. If he makes 8 attempts, all independent of each other, what is the probability that he makes exactly two of them (to the nearest two decimal places)?

(a) 0.50

(b) **0.31**

(c) 0.25

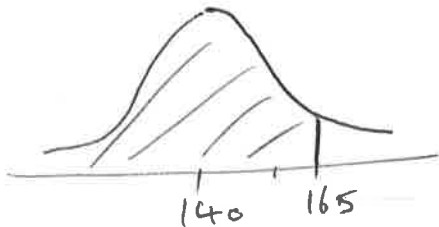
(d) 1.00

(e) 0.13

$$\begin{aligned}
 X &= \# \text{ successes} \\
 &= \text{Binomial}, n=8, p=.25 \\
 P(X=2) &= C(8, 2) (.25)^2 (.75)^6 \approx .31
 \end{aligned}$$

2. (5 pts) A standardized test is designed so that the scores are normally distributed with mean 140, standard deviation 20.

- (a) What proportion of the test takers score 165 points or less?

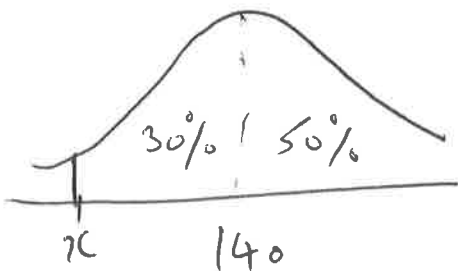


$$z\text{-score of } 165 \text{ is } \frac{165 - 140}{20} = 1.25$$

$$\begin{aligned}
 \text{From table, } P(Z \leq 1.25) &= .5 + .3944 \\
 &= .8944
 \end{aligned}$$

So  $\approx$  **89%** of takers score 165 or less

- (b) For which number  $x$  is it true to say "80% of the people who take the test get a score of  $x$  points or better"?



$x$  will be below 140

Want area to right of  $x$  under curve to be .80

$$\text{From table, } P(0 \leq Z \leq .84) \approx .30$$

So  $x$  should have  $z$ -score  $-.84$  (so

that 30% of area is between  $x$  and 140, and 50% to right of 140)

$$\text{Number w } z\text{-score } -.84 \text{ is } 140 - .84(20) = \mathbf{123.2}$$