

Name: \_\_\_\_\_

MATH 100

Fall 2022

HW 20: Due 12/05

*“The only normal people are the ones  
you don’t know very well.”*

*–Alfred Adler*

**Problem 1.** (10pt) Given the binomial distributions below, find the probability of the event(s) indicated.

(a)  $B(0.40, 7), P(X = 4)$

(b)  $B(0.25, 12), P(X < 3)$

(c)  $B(0.50, 4), P(X \geq 1)$

(d)  $B(0.10, 15), P(X > 5)$

(e)  $B(0.15, 8), P(2 < X \leq 6)$

**Problem 2.** (10pt) Suppose at a school that 15% of students do not receive any scholarships. If you take a simple random sample of 14 students, find the probability that. . .

- (a) exactly four of the students did not receive any scholarships.
- (b) five or more of the students did not receive any scholarships.
- (c) at least one of the students did not receive any scholarships.
- (d) less than 3 of the students did not receive any scholarships.
- (e) none of the students received a scholarship.

**Problem 3.** (10pt) A city is considering whether or not to build a park in a newly acquired lot. It is estimated that 53% of the population is in favor of building the park. The city conducts a survey of its residents consisting of 300 people. What is the approximate probability that between 140 and 170 people surveyed are in favor of the park?