Name: _____
MATH 100
Fall 2022
HW 18: Due 11/28

"The only normal people are the ones you don't know very well."
–Alfred Adler

Problem 1. (10pt) Consider the normal distribution $N(125, 18)$. Find the following:

(a) $P(X = 125)$

(b) $P(X \leq 125)$

(c) $P(X \leq 150)$

(d) $P(X \geq 150)$

(e) $P(125 \leq X \leq 150)$

Problem 2. (10pt) Suppose Anna D. and Elizabeth H. took the SAT and ACT, respectively. Anna scored 28 on the ACT while Elizabeth scored 2200 on the SAT. The ACT scores were normally distributed with mean 19.5 and standard deviation 6.7 while the SAT scores were normally distributed with mean 1500 and standard deviation 300. Who did better on their respective exam? Explain.

Problem 3. (10pt) Suppose last years SAT scores were normally distributed with mean 1010 and standard deviation 120. What is the lowest possible score that you could receive to be in the top 20% of students taking the exam?