Northern Michigan University (Marquette Co, MI)

CS470-01-26W: Artificial Intelligence (Andrew A. Poe) Name: _____
Quiz 2 Wednesday 4 February 2026 9:00 A.M. EST

Time: 15 minutes

I have four cities: Indianapolis, New York, Detroit, and Cleveland.

The actual shortest "as the crow flies" path distances between these cities is given by the following. (You don't need to use the Pythagorean Theorem; I've already done that and put the results into a table.)

	I	N	D
N	645		
D	240	482	
C	165	405	238

Now, imagine I have roads between certain of these cities, but not all of them.

N<->C: 469
N<->D: 632
C<->I: 184
D<->I: 299

Demonstrate how the A* algorithm would find the shortest *driving* path between New York and Indianapolis.

N→C: 469+165 = 634 N→D: 632+240 = 872

C, D is front pq

C→I: 469+184 = 653

I, D is new pri queue

Pop I and we're there! N→C→I: 653 mi