You are playing the dastardly role of Oscar in this problem and are implementing a MITM attack where you can intercept and alter any messages that Alice and Bob send to each other.

You choose to use a private key of c = 1341.

Alice's value for DHKE is A = 91371 and Bob's value is B = 126585. You intercept these and apply a MITM attack.

- 1. What is the symmetric key that Alice will use for encrypting/decrypting messages to Bob?
- 2. What is the symmetric key that Bob will use for encrypting/decrypting messages to Alice?
- 3. If you had not implemented the MITM attack, what is the symmetric key that Alice and Bob would use?