1. At 17 Kbit/sec, decrypting with AES will take about 480 seconds or 8 minutes. At 100 Kbit/sec with RSA, decrypting will take about 83000 sec or 23 hours.
2. With p=3, q=11, d=7, x=5,

   N = p * q = 33
   Theta(n) = (p-1)(q-1)= 20
   d=7, then e=3

   our private key will be (3, 55) and public key will be (7,55)
   encryption will be plaintext x=5 so 5^7mod33 = 14 for the cipertext
   decryption will be 14^3mod33 =5 for the decrypted cipertext.

3.

4. Sender authentication implies data integrity because the data sent by the sender will be authentic, that is, the sender controlled the data and if verification proves the data came from the sender then the data is unchanged and therefore kept integrity. However, data integrity does not imply sender authentication. Integrity without authentication means that we lose authenticity, which means we don’t know who controlled the data, so even if the data was kept unchanged we can’t say it came from the sender we know.

5.