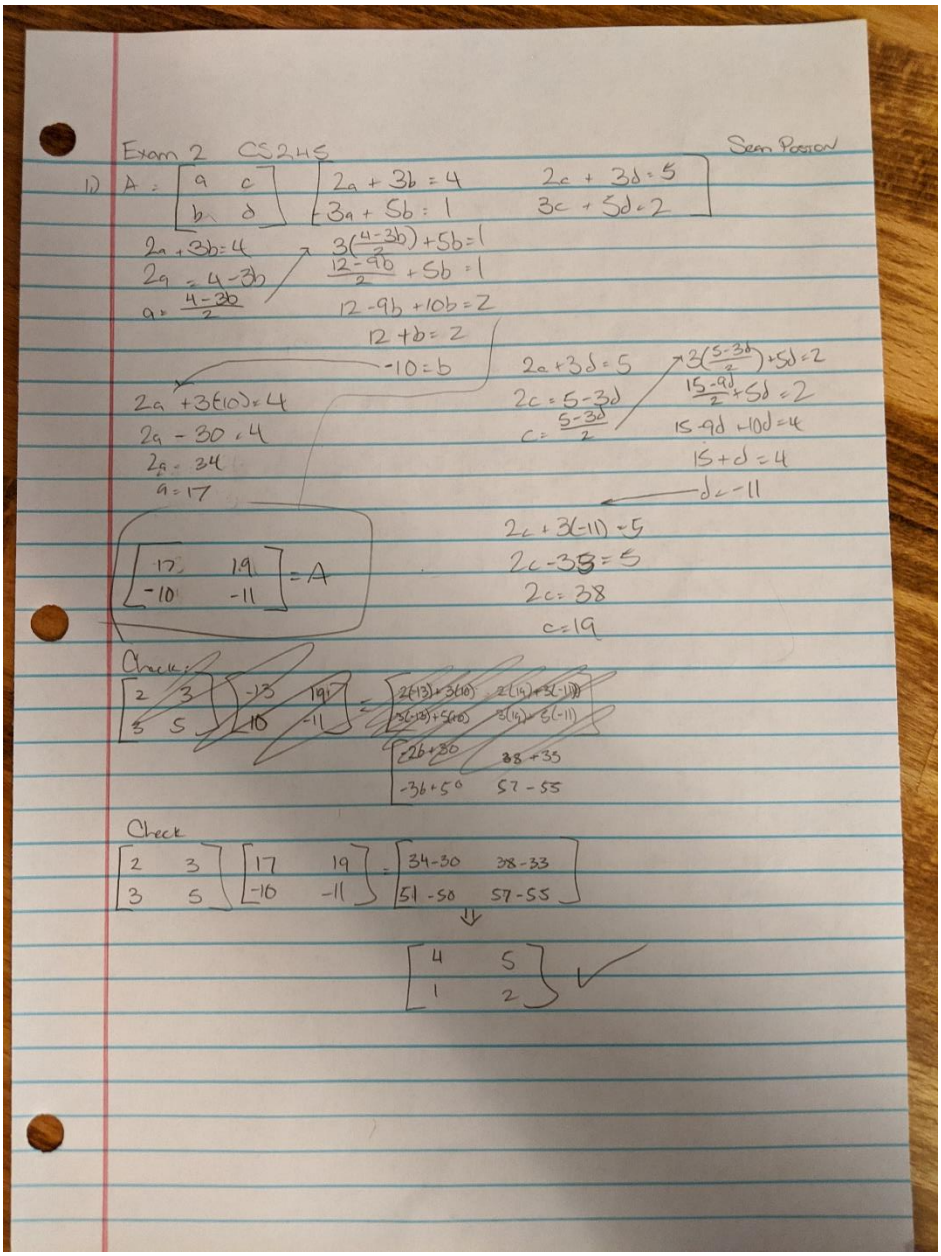
Sean Poston

CS245 Exam 2 Work

4/4/2020



Start

2.) 7, 4, 1, 3, 5, 2, 6
- is 4 < 7? yes, swap with 7

4, 7, 1, 3, 5, 2, 6
- is 1 smaller than 7? swap; is 1 < 4? yes, swap.

1, 4, 7, 3, 5, 2, 6
- is 3 < 7? yes, swap; is 3 < 4? yes, swap; is 3 < 1? no

1, 3, 4, 7, 5, 2, 6
- is 5 smaller than 7? yes, swap; is 5 < 4? no.

1, 3, 4, 5, 7, 2, 6
- is 2 < 7? yes; is 2 < 5? yes; is 2 < 4? yes; is 2 < 3? yes; is 2 < 1? no

1, 2, 3, 4, 5, 7, 6
- is 6 < 7? yes, swap; is 6 < 5? no.

1, 2, 3, 4, 5, 6, 7
- end.

3.) $8,\ 6\log n,\ 9n,\ 2n\log n,\ 3n^2,\ 2n^3,\ 5^n,\ 7^n,\ (4n!)^2$

$4(100!)^2 = 1$

$5^{100} = 3$

$7^{100} = 2$

4.) a.) $O(n^2)$

b.) 3^n

c.) $2n$