Webinar HW - 5/12/2020

1) $T(n) = 3T(n/2) + n^2$ Case 3 $T(n) = \theta(n^2)$

2) $T(n) = 4T(n/2) + n^2$ Case 2 $T(n) = \theta(n^2 \log n)$
3) $T(n) = T(n/2) + 2^n$ Case 3 $T(n) = \theta(2^n)$
4) $T(n) = 2^n T(n/2) + n^n$ a is not constant. so cannot be calculated.

5) $T(n) = 16T(n/4) + n$ Case 1 $T(n) = \theta(n^2)$
6) $T(n) = 2T(n/2) + n \log n$ Case 2 $T(n) = \theta(n \log^2 n)$
7) $T(n) = 2T(n/2) + n/\log n$ Case 2 $T(n) = \theta(n \log \log n)$
8) $T(n) = 2T(n/k) + n^{0.5}$ Case 3 $T(n) = \theta(n^{0.5})$
9) $T(n) = 0.5T(n/2) + 1/n$ Does not apply as $a < 1$
10) $T(n) = 16T(n/4) + n!$

11) $T(n) = \sqrt{2}T(n/2) + \log n$ Case 1 $T(n) = \theta(\sqrt{n})$
12) $T(n) = 3T(n/2) + n$ Case 1 $T(n) = \theta(n^{\log_2 3})$
13) $T(n) = 3T(n/3) + \sqrt{n}$ Case 3 $T(n) = \theta(\sqrt{n})$
14) $T(n) = 4T(n/2) + cn$ Case 3 $T(n) = \theta(n)$
15) $T(n) = 3T(n/4) + n \log n$ Case 3 $T(n) = \theta(n \log n)$
16) $T(n) = 3T(n/3) + n/2$ Case 2 $T(n) = \theta(n \log n)$
17) $T(n) = 6T(n/3) + n^2 \log n$ Case 3 $T(n) = \theta(n^2 \log n)$
18) $T(n) = 4T(n/2) + n/\log n$ Case 1 $T(n) = \theta(n^2)$