Find the time complexity of the below functions in Θ form. Write NA if the function does not apply to any case.

1. T (n) = 3T (n/2) + n

**T (n) = Θ(n lg 3) (Master theorem Case 1)**

1. T (n) = 64T (n/8) − n^2(log n)

We have a = 64, b = 8, f(n) = - n2 log n

f(n) = - n2 log n is not positive, log n =⇒ Does not apply (f(n) is not positive)

**we cannot solve this recurrence using Masters theorem**

1. T (n) = 2nT (n/2) + n^n

Since a is not a number,

n =⇒ Does not apply (a is not constant)

**we cannot solve the recurrence using masters theorem.**

1. T (n) = 3T (n/3) + n/2

**T(n) = Θ(n log n) (Master theorem Case 2)**

1. .T (n) = 7T (n/3) + n^2

T(n) = Θ(n^loga(base b))

= Θ(n^log7(base 2))

**T (n) = Θ(n^3) (Master theorem Case 1)**