2a) $T(n) = 3T(\frac{n}{5}) + n^2$

$a = 3, b = 5, f(n) = n^2$

$\log_5 3 \approx 0.682$

$2 > 0.682$

$T(n) = \Theta(n^2)$

2b) $T(n) = 4T(\frac{n}{3}) + 7n$

$a = 4, b = 3, f(n) = 7n$

$\log_3 4 \approx 1.261$

$1.261 > 1$

$T(n) = \Theta(n^{\log_3 4})$

2c) $T(n) = 5T(\frac{n}{4}) + 10$

$a = 5, b = 4, f(n) = 10$

$\log_4 5 \approx 1.161$

$1.161 > 0$

$T(n) = \Theta(n^{\log_4 5})$

2d) $T(n) = 9T(\frac{n}{3}) + n^4$

$a = 9, b = 3, f(n) = n^4$

$\log_3 9 = 2$

$4 > 2$

$T(n) = \Theta(n^4)$

2e) $T(n) = 6T(\frac{n}{8}) + n^3$

$a = 6, b = 8, f(n) = n^3$

$\log_8 6 \approx 0.861$

$3 > 0.861$

$T(n) = \Theta(n^3)$