THIAGO OLIVEIRA

1- a) $3n^2 + n = \Omega(n)$

$3n^2 + n \geq c \cdot n$

$3n + 1 \geq c$

$n_0 = 1; c \leq 4$

$n_0 = 2; c \leq 7$

$n_0 = 3; c \leq 10$

$n_0 = 1 \quad c = 4$

b) $3n^2 + n = O(n)$

$3n + 1 \leq c$

$n_0 = 4; c \geq 13$

$n_0 = 5; c \geq 16$

$n_0 = 6; c \geq 181$

NÃO EXISTE "C" QUE SATISFAÇA

c) $2n^2 + 10 = O(n^3)$

$2n^2 + 10 \leq c \cdot n^3$

$\frac{2}{n} + \frac{10}{n^3} \leq c$

$n_0 = 1; c \geq 12$

$n_0 = 2; c \geq 2,25$

$n_0 = 3; c \geq 1$

$n_0 = 1 \quad c = 12$

d) $2n^2 + 10 = O(n^2)$

$2n^2 + 10 \leq c \cdot n^2$

$\frac{10}{n^2} + 2 \leq c$

$n_0 = 1; c \geq 12$

$n_0 = 2; c \geq 4,5$

$n_0 = 3; c \geq 3,11$

$n_0 = 1 \quad c = 12$

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e) $4n + 7 \leq O(n)$

$4n + 7 \leq c \cdot n$

$\frac{7}{n} + 4 \leq c$

$n_0 = 1 \; ; \; c \geq 11$

$n_0 = 2 \quad c \geq 7,5$

$n_0 = 3 \quad c \geq 6,34$

$n_0 = 1 \quad c \geq 11$

f) $2n^2 + n = O(n)$

$2n^2 + n \leq c \cdot n$

$2n + 1 \leq c$

$n_0 = 1 \; ; \; c \geq 3$

$n_0 = 2 \; ; \; c \geq 5$

$n_0 = 3 \; ; \; c \geq 7$

NÃO EXISTE "c" QUE SATISFAÇA

g) $\frac{1}{2n^2} - 3n = \Theta(n^2)$

$c_1 \cdot n^2 \leq \frac{1}{2n^2} - 3n \leq c_2 \cdot n^2$

$c_1 \leq \frac{1}{2n^4} - \frac{3}{n} \leq c_2$

$n_0 = 1 \; ; \quad c_1 \leq -2,5 \leq c_2$

$n_0 = 2 \; ; \quad c_1 \leq -1,43 \leq c_2$

$n_0 = 3 \; ; \quad c_1 \leq -0,98 \leq c_2$

$c_1 = -2,5$ E NÃO EXISTE c_2