

Cota inferior:  $\Omega$

Ejercicio:  $T(n) = 32n^2 + 17n + 32$

- Es  $T(n)$ :
- $\Omega(n)$ ?
  - $\Omega(n^2)$ ?
  - $\Omega(n^3)$ ?

$\Omega$ : Cota inferior

$$T(n) = \Omega(g(n)) : \exists c, n_0 > 0 / T(n) \geq c * g(n), \forall n \geq n_0$$

Propiedades de  $\Omega$

Propiedad 8

$$\lim_{n \rightarrow \infty} \frac{T(n)}{g(n)} = k$$

a) Si  $k \neq 0$  y  $k < \infty \Rightarrow \Omega(T) = \Omega(g)$

b) Si  $k = 0 \Rightarrow T \notin \Omega(g)$ , pero  $g \in \Omega(T)$ ,  $\Omega(g) \subset \Omega(T)$

$$\lim_{n \rightarrow \infty} \frac{32n^2 + 17n + 32}{n} \stackrel{?}{=} g(n) = n$$

$$= \infty + 17 + 0 = \infty$$

Probando

$$32n^2 + 17n + 32 \geq c * \frac{n}{n}$$

Sup. 1)  $c = 1$   
 $32n^2 + 17n + 32 \geq n$

2)  $n = 1$   
 $32(1) + 17(1) + 32 \geq 1$   
 $81 \geq 1$

(✓)  $\Rightarrow T(n) \in \Omega(n)$

conti™