

$$\lim_{n \rightarrow \infty} \frac{\sqrt{n}}{9n^{0.7} + 2n^{0.5} + 4 \log n} = 0$$

so:  $\underline{g \in \theta(f)}$  does not hold

$g \in O(f)$  holds

$g \in o(f)$  holds

$g \in \Omega(f)$  does not hold

$g \in \omega(f)$  does not hold

c)  $f(n) = \frac{n^2}{\log n}$      $g(n) = n \log n$

$$\lim_{n \rightarrow \infty} \frac{\frac{n^2}{\log n}}{n \log n} = \lim_{n \rightarrow \infty} \frac{n^2}{\log n \cdot n \log n} = \lim_{n \rightarrow \infty} \frac{n}{(\log n)^2} = 0$$

$$= \lim_{n \rightarrow \infty} \frac{n}{(\log n)^2} = 0$$

so,  $f \in \theta(g)$  does not hold

$f \in \Omega(g)$  does not hold     $f \in O(g)$  holds

$f \in \omega(g)$  does not hold     $f \in o(g)$  holds

$\frac{1}{n^2}$

$\frac{1}{n}$

$\frac{1}{n}$

$\frac{1}{n}$

$\frac{1}{n}$