

Determinare il dominio delle seguenti funzioni:

- a) $y = \log\left(\frac{x-2}{x}\right)$
 b) $y = (x^2 - x)^{\sqrt{5}}$
 c) $y = (3x - x^2)^{-\sqrt{5}}$
 d) $y = (x + 1)^x$
 e) $y = \sqrt{2^x - 1} + \sqrt{9 - 3^x}$
 f) $y = \frac{1}{\log^2 x - 4}$
 g) $y = \frac{1}{\log_3 x - 2}$
 h) $y = \sqrt{\sin x}$
 i) $y = \sqrt{\cos x}$
 j) $y = \sqrt{\log_{1/2}(\sin x)}$
 k) $y = (\log_2 \cos x)^{-1/2}$
 l) $y = (\sin x - 1)^{\sqrt{2}}$
 m) $y = \text{Log}\left[\sin\left(x + \frac{\pi}{3}\right) + 1\right]$
 n) $y = (2 \sin x + \sqrt{3})^{\log(2 \sin x - 1)}$, in $[0; 2\pi]$
 o) $y = \sqrt{\frac{2 \cos x + 1}{2 \cos^2 x - 1}}$, in $[0; 2\pi]$
 p) $y = \sqrt[4]{\log_5 \log_2(2x - 3)}$

Tracciare il grafico delle seguenti funzioni, determinando dominio e codominio.

$$q) f(x) = \begin{cases} -x + 2 & \text{se } 0 \leq x \leq 1 \\ x & \text{se } 1 < x \leq 3 \\ 1 & \text{se } 3 < x \leq 5 \end{cases}$$

$$r) f(x) = \begin{cases} 2 - x & \text{se } x \leq -1 \\ 5 - 2x & \text{se } x > -1 \end{cases}$$

$$s) f(x) = \begin{cases} x - 3 & \text{se } x < 4 \\ 2x - 7 & \text{se } x \geq 4 \end{cases}$$

$$t) f(x) = |x - 4| + 2$$

$$u) f(x) = 2 - |2x + 1|$$

$$v) f(x) = \frac{1}{x}$$

$$w) f(x) = -\frac{1}{x}$$

x) $f(x) = \sin x$

y) $f(x) = \sin(x + 2)$