

# Funzioni

Andrea Canale

July 4, 2023

## 1 Es 19 - Pag 96

$$\begin{aligned}f(x) &= 2x^2 + 3x - 1 \\f(2x) &= 8x^2 + 6x - 1 \\2f(x) &= 4x^2 + 6x - 2 \\f(x+1) &= 2x^2 + 7x + 4 \\f(x) + 1 &= 2x^2 + 3x\end{aligned}$$

## 2 Es 20 - Pag 96

$$\begin{aligned}f(x) &= \frac{x-2}{x+1} \\f(x+2) &= \frac{x}{x+3} \\f(x) + 2 &= \frac{3x}{x+1} \\f(2x) &= \frac{2x-2}{2x+1} \\2f(x) &= \frac{2x-4}{2x+1}\end{aligned}$$

## 3 Es 29 - Pag 97

$$\begin{aligned}f(x) &= \frac{x-1}{x+1} \quad g(x) = 2x \\2f(x+1) &\geq 2g(x-1) - 3 \\ \frac{2x}{x+1} &\geq 4x - 4 \\ \frac{2x}{x+1} - 4x + 4 &\geq 0 \\ \frac{-4x^2+2x+4}{x+1} &\geq 0\end{aligned}$$

Risoluzione

$$-4x^2 + 2x + 4 \geq 0$$

$$\frac{-2 \pm \sqrt{2^2 - 4 \cdot (-4) \cdot 4}}{-8} = \frac{-2 \pm \sqrt{4+64}}{-8}$$

$$\frac{-2 + \sqrt{68}}{-8}$$

$$\frac{-2 - \sqrt{68}}{-8}$$

$$x + 1 \geq 0$$

$$x \geq -1$$