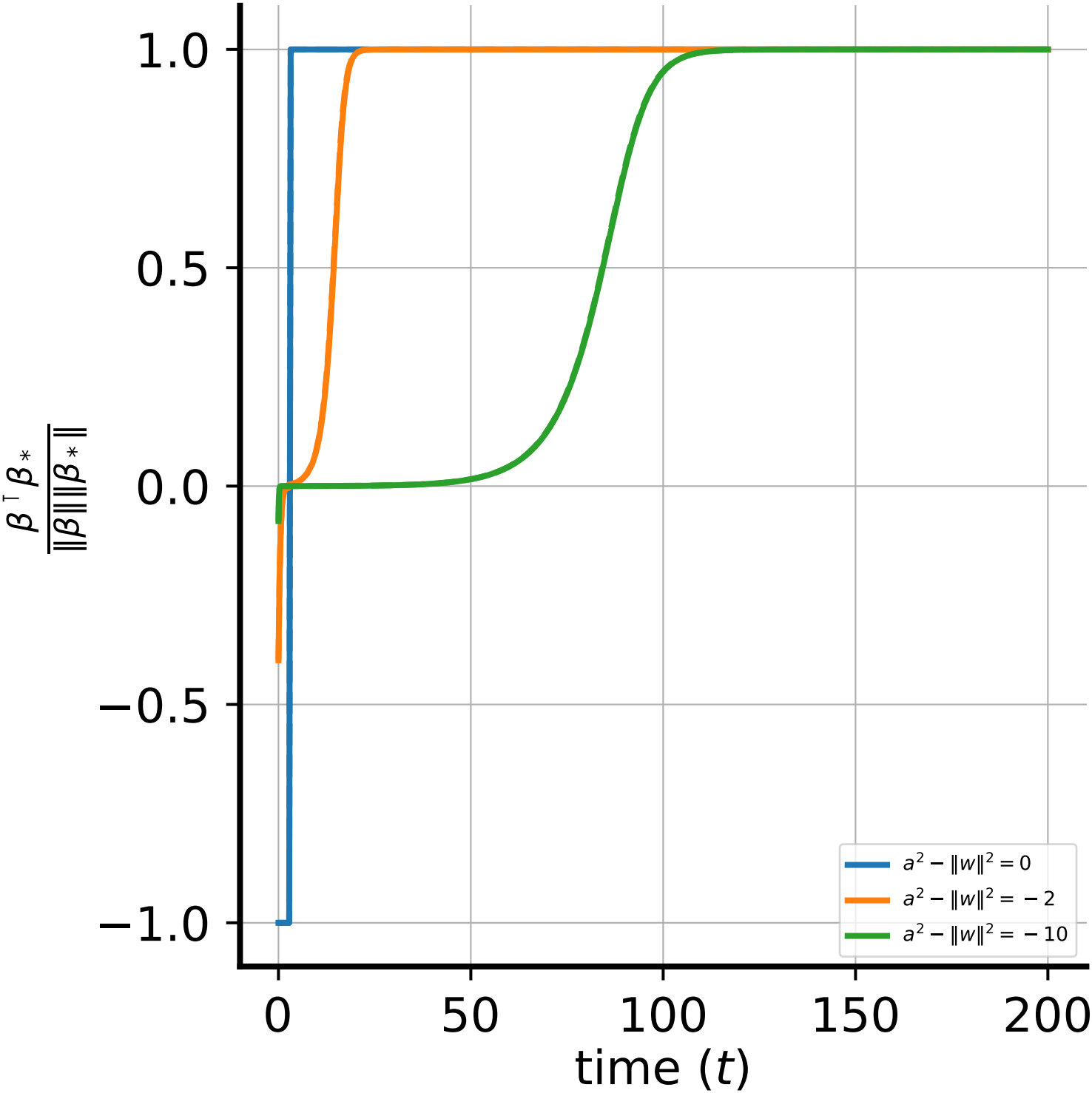
1.0
0.5
0.0
−0.5
−1.0
0
50
100
150
200
time (t)
$\frac{\beta^\top \beta_*}{\|\beta\|\|\beta_*\|}$
$a^2 - \|w\|^2 = 0$
$a^2 - \|w\|^2 = -2$
$a^2 - \|w\|^2 = -10$