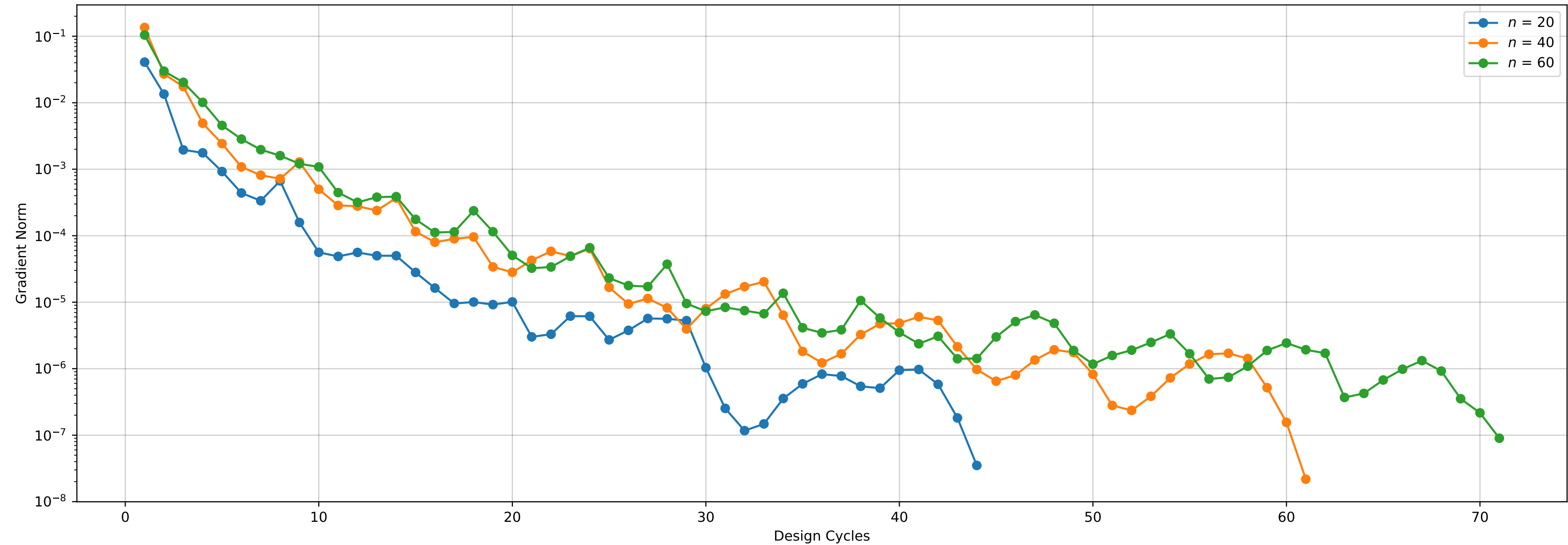
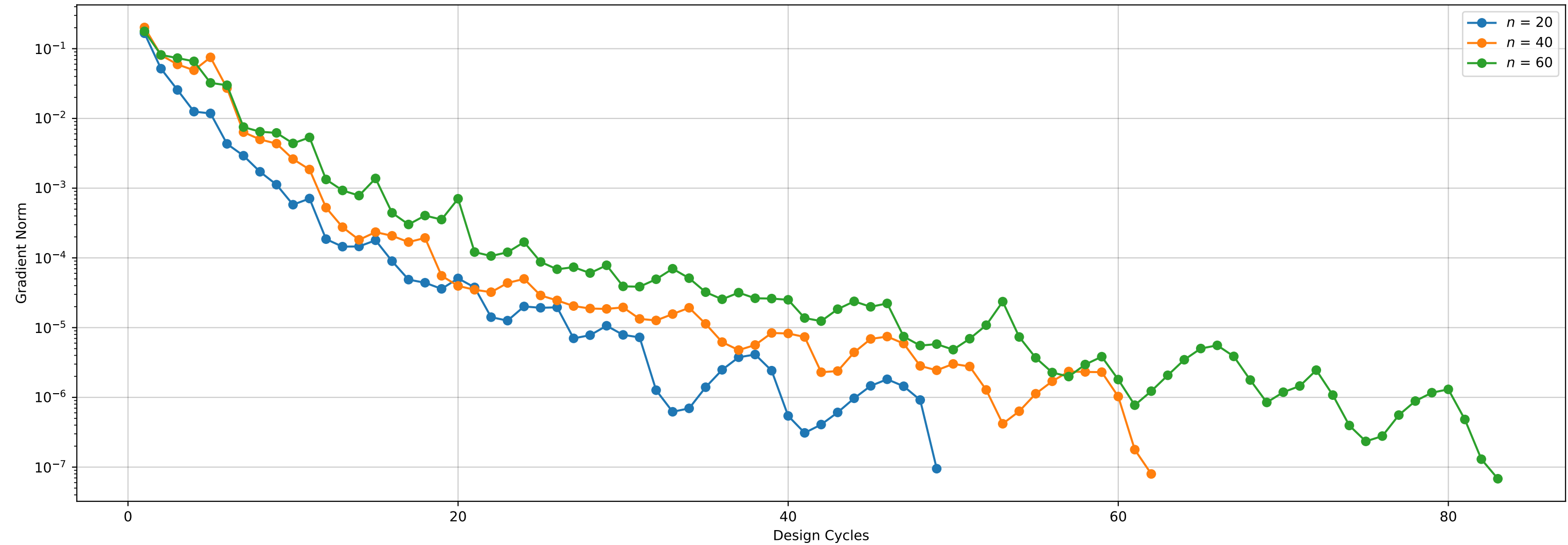


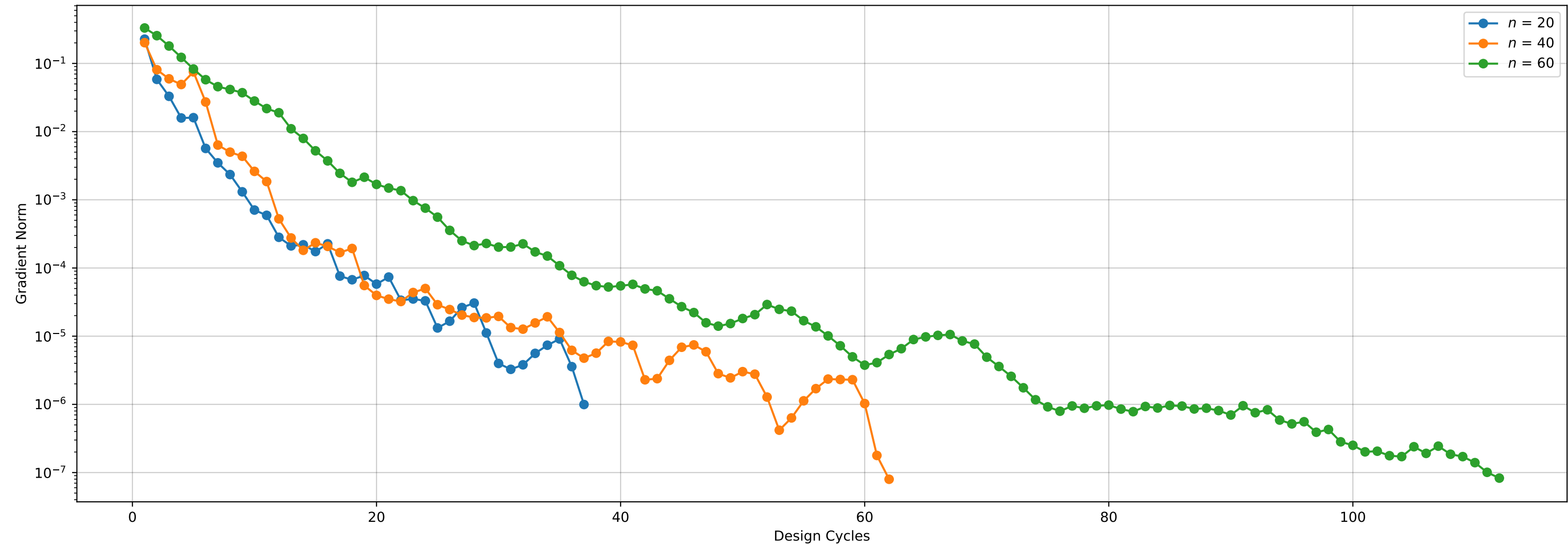
Reduced-space BFGS Gradient vs Design Cycles,  $m = 8248$



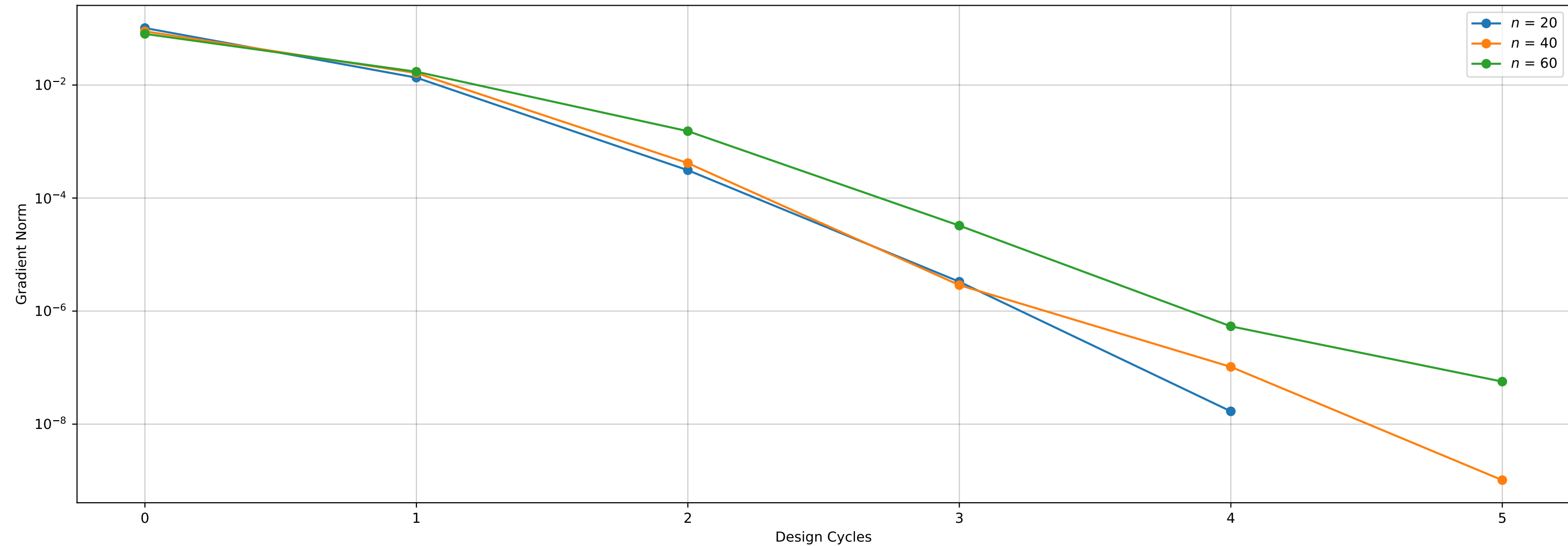
Reduced-space BFGS Gradient vs Design Cycles,  $m = 32992$



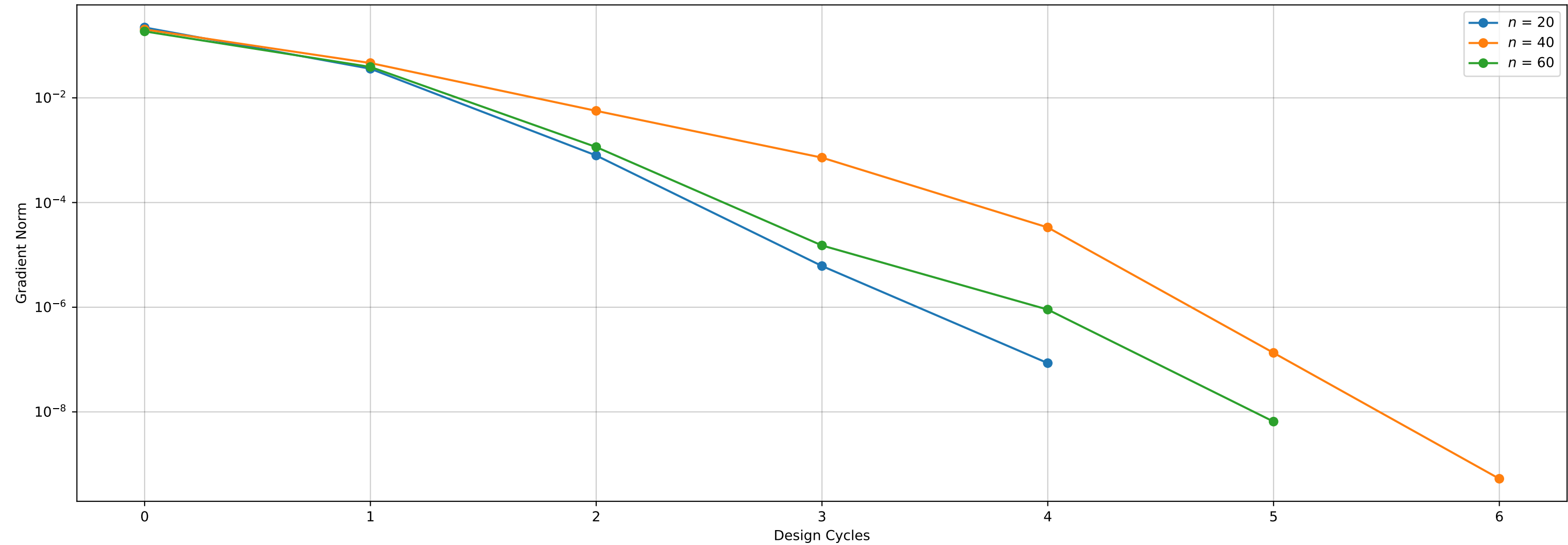
Reduced-space BFGS Gradient vs Design Cycles,  $m = 74232$



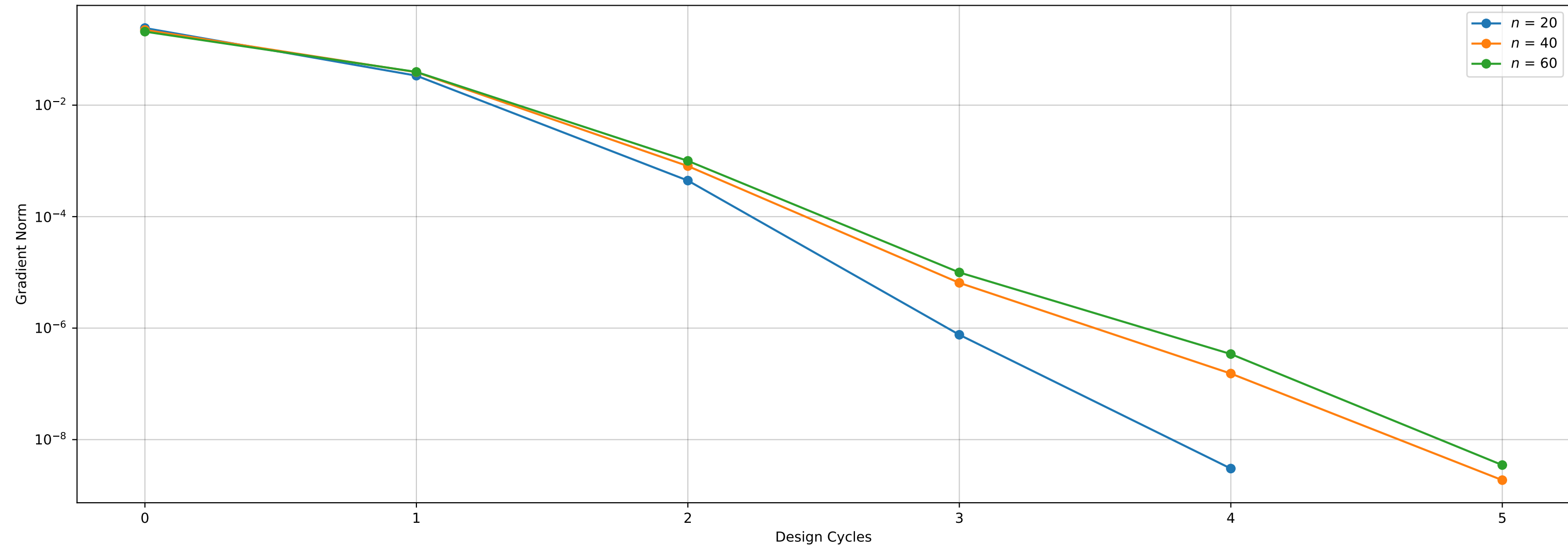
Reduced-space Newton Gradient vs Design Cycles,  $m = 8248$



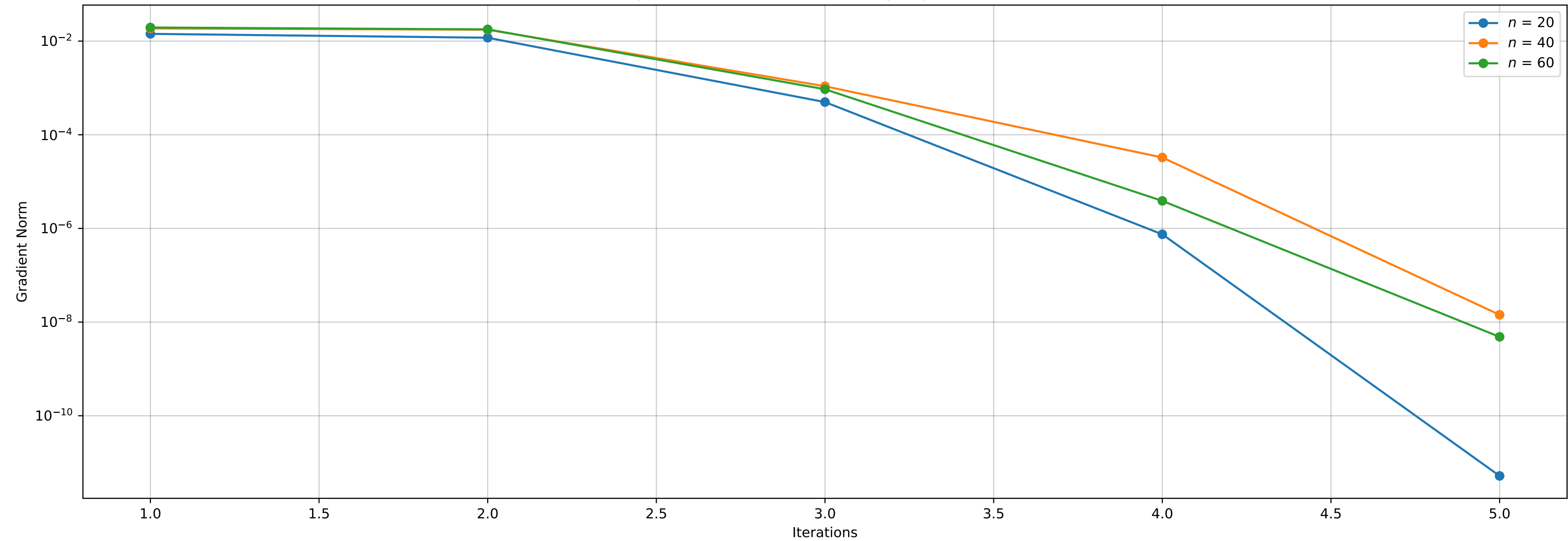
Reduced-space Newton Gradient vs Design Cycles,  $m = 32992$



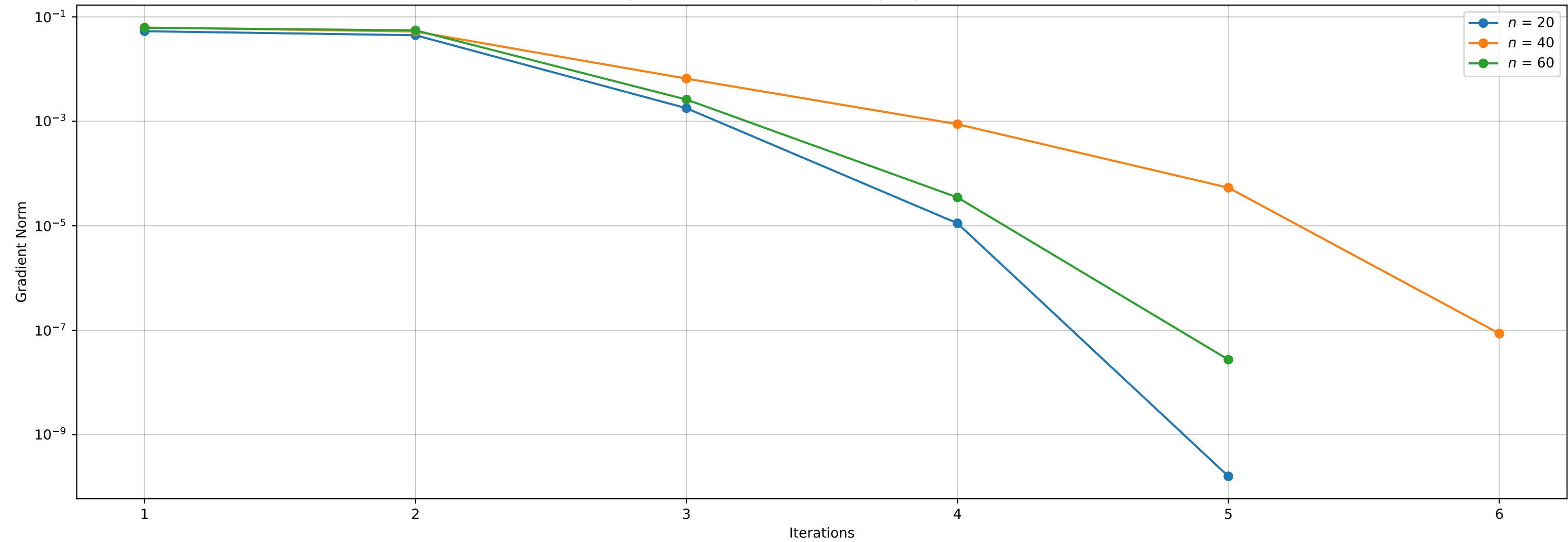
Reduced-space Newton Gradient vs Design Cycles,  $m = 74232$



Full-space with  $\tilde{\mathbf{P}}_2$  Gradient vs Design Cycles,  $m = 8248$

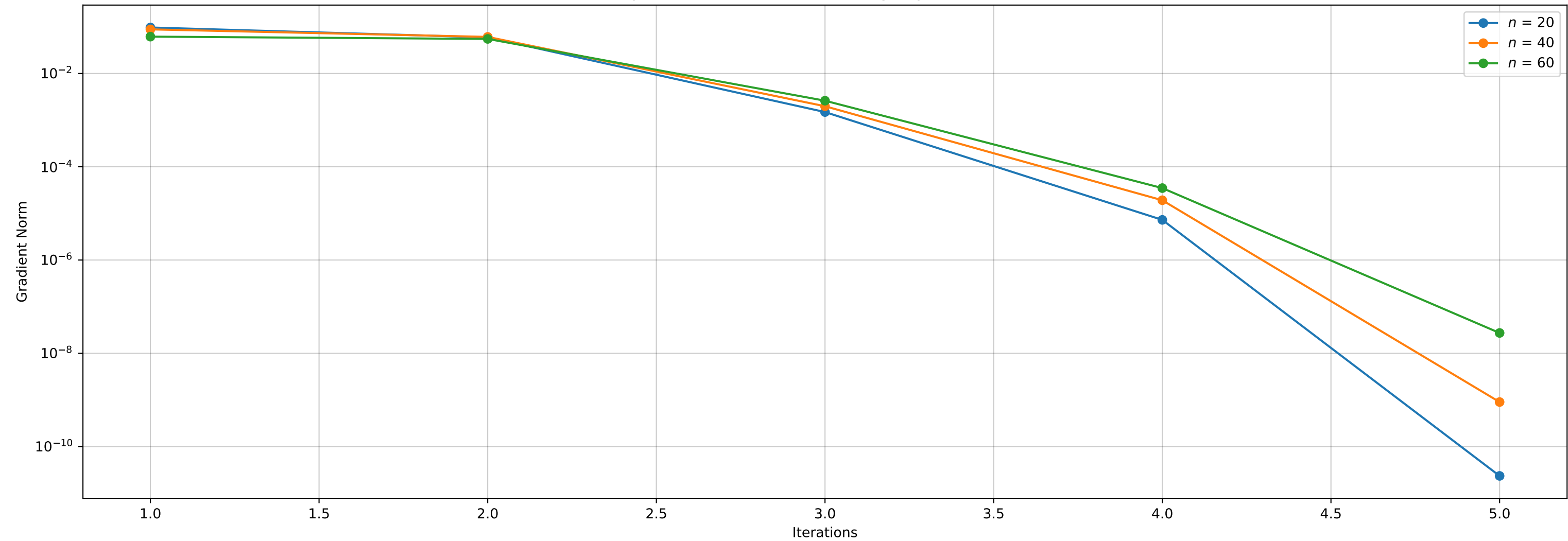


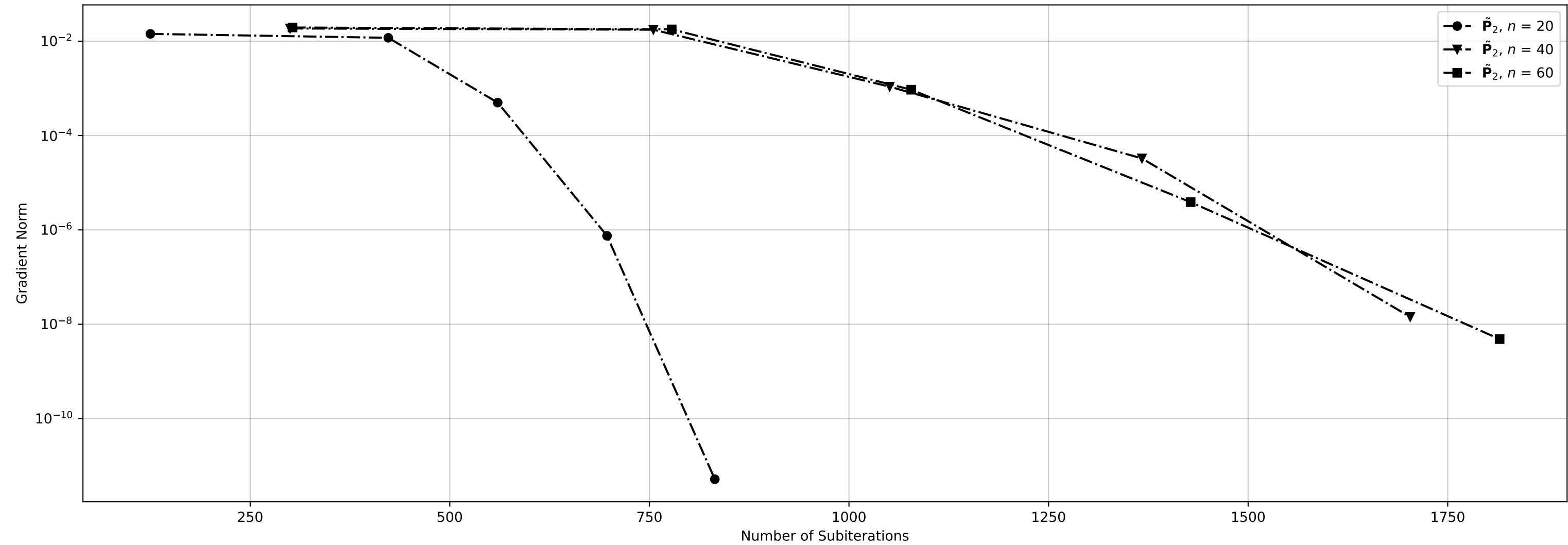
Full-space with  $\tilde{\mathbf{P}}_2$  Gradient vs Design Cycles,  $m = 32992$

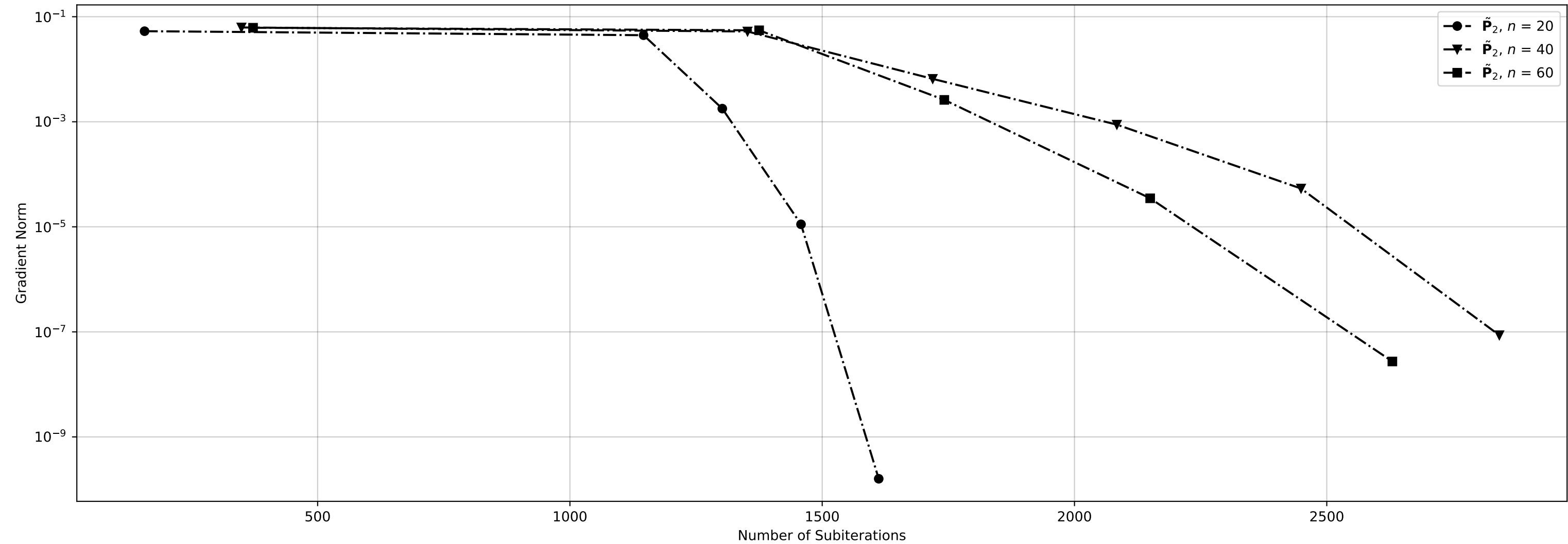


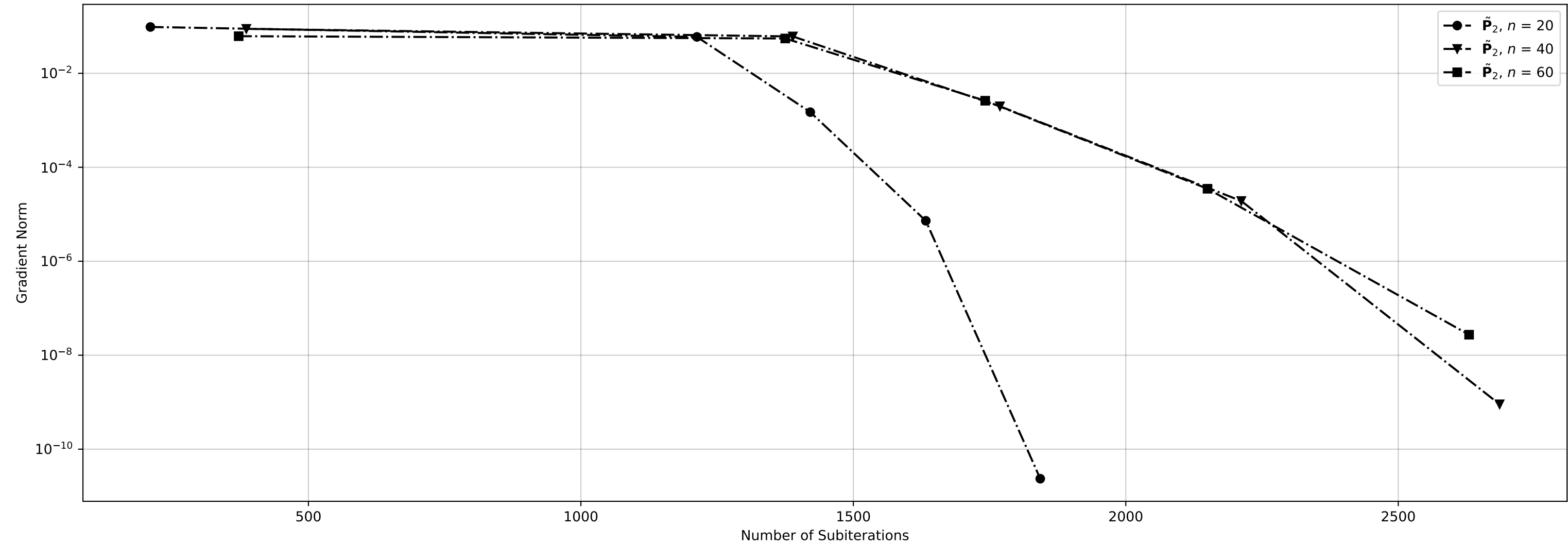


Full-space with  $\tilde{\mathbf{P}}_2$  Gradient vs Design Cycles,  $m = 74232$

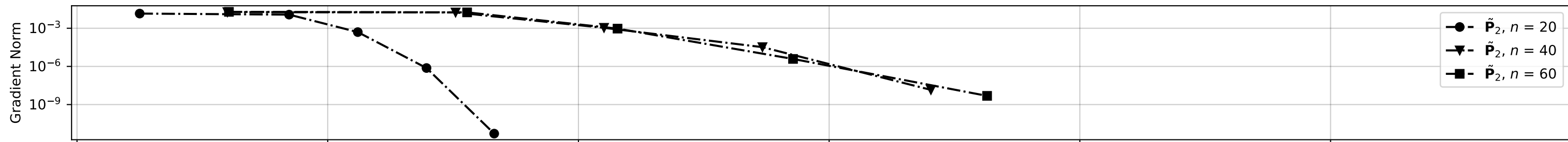


Full-space Gradient vs Subiterations,  $m = 8248$ 

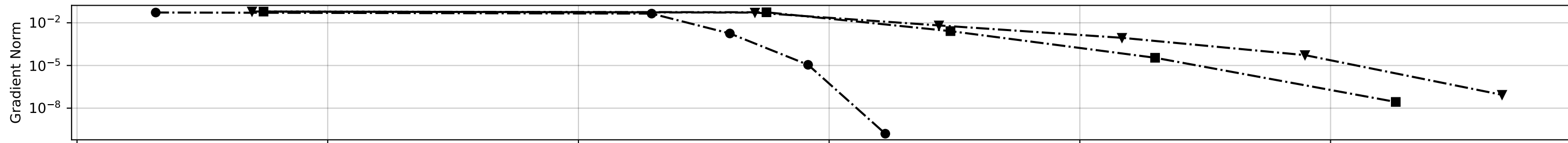
Full-space Gradient vs Subiterations,  $m = 32992$ 

Full-space Gradient vs Subiterations,  $m = 74232$ 

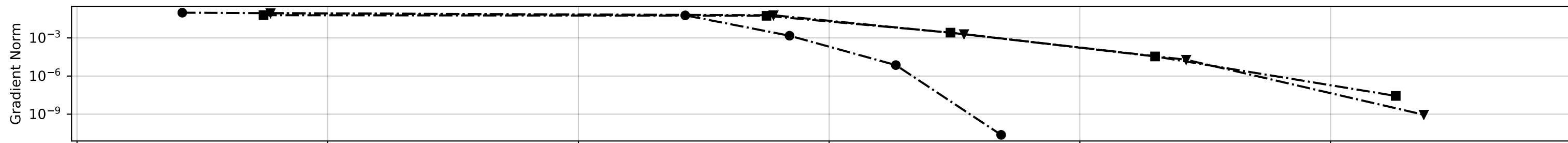
Full-space Gradient vs Subiterations  
 $m = 8248$



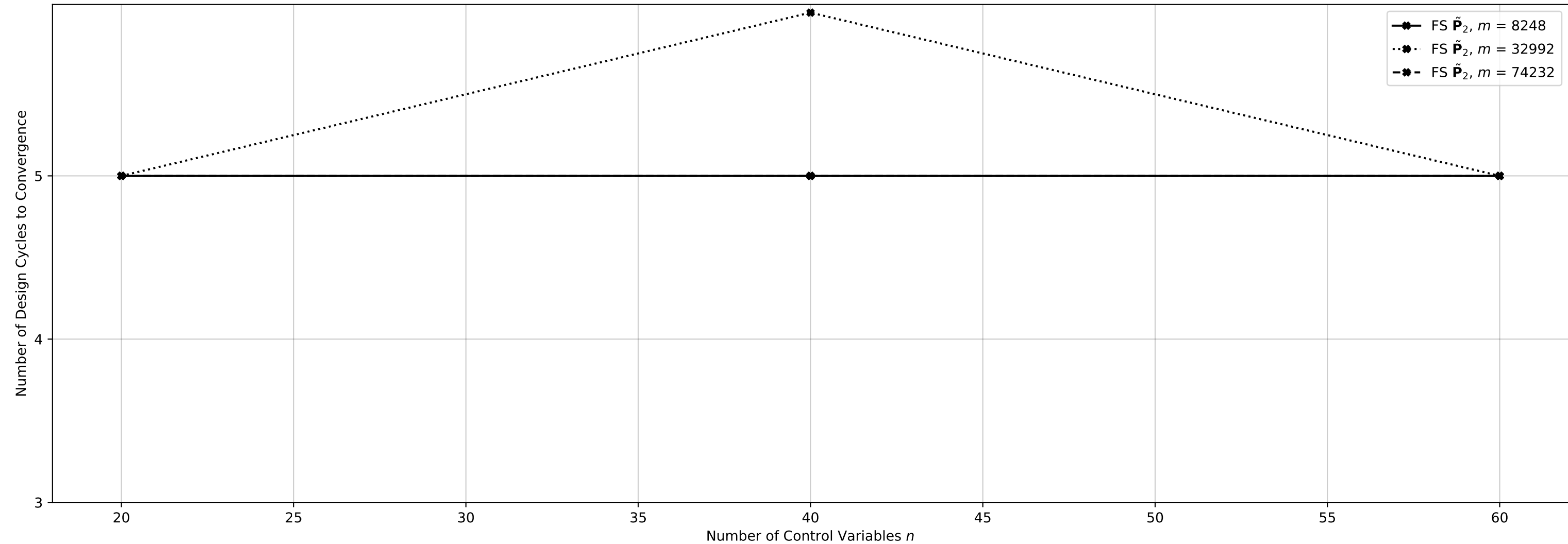
$m = 32992$



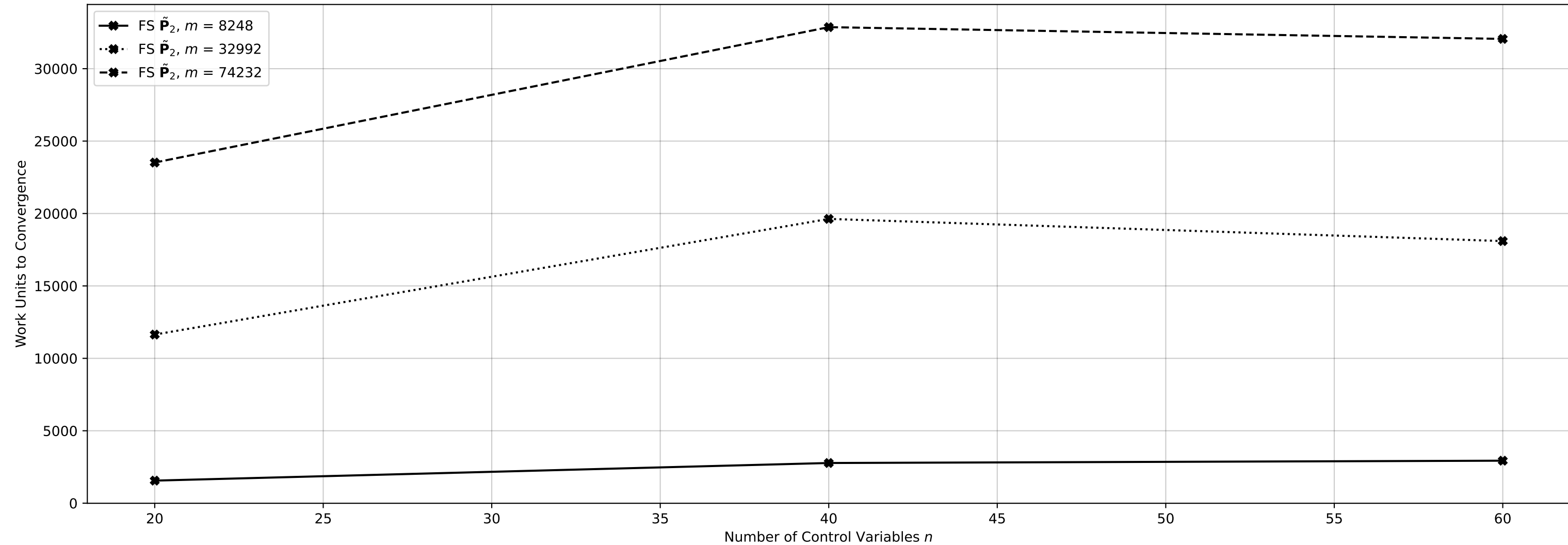
$m = 74232$



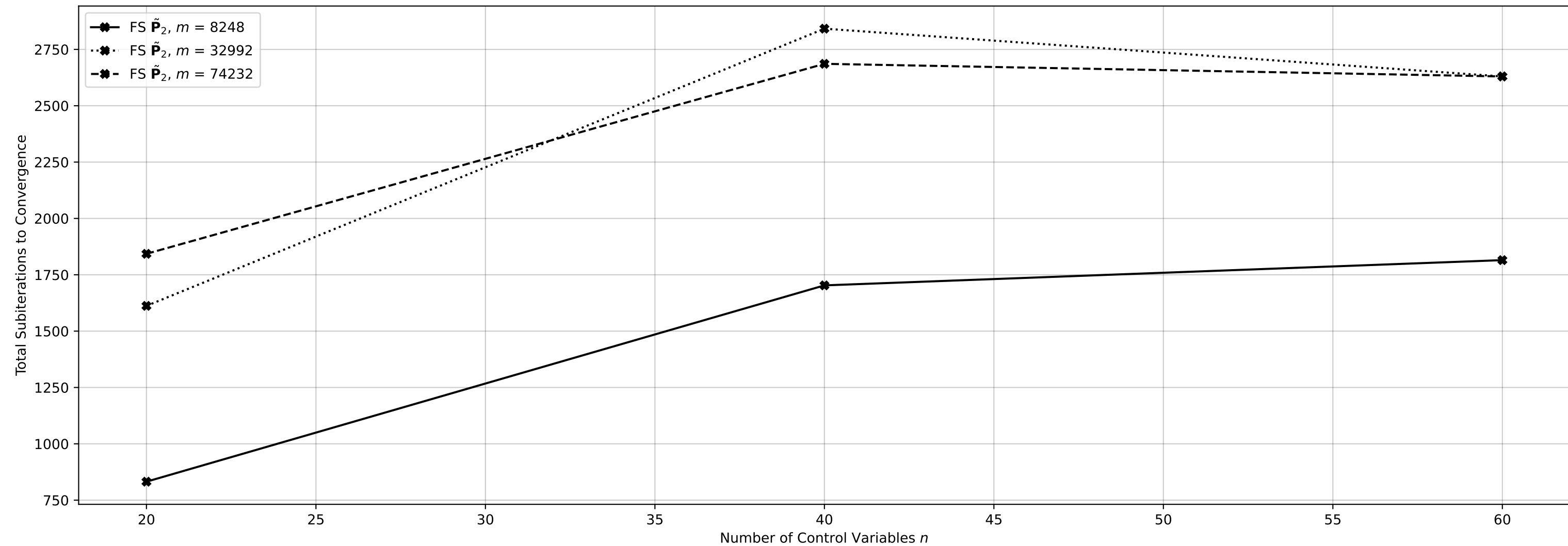
Full-space Design Cycles vs Control Variables



Work Units vs Control Variables

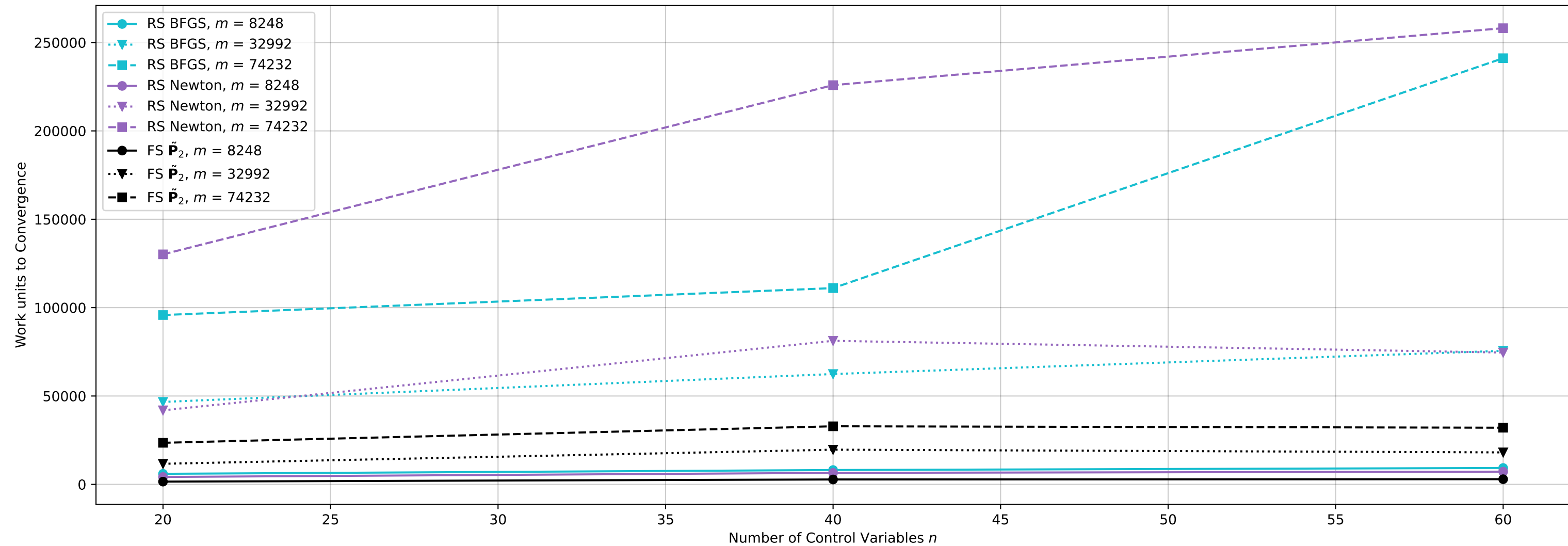


Total Subiterations vs Control Variables

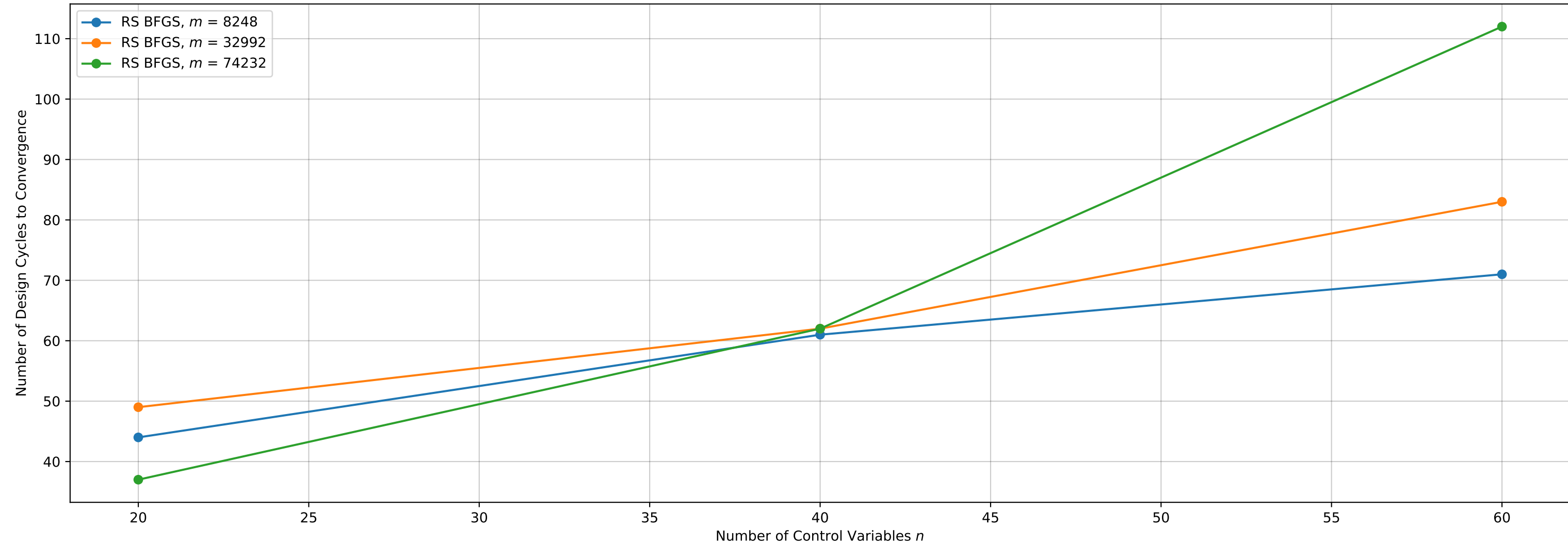




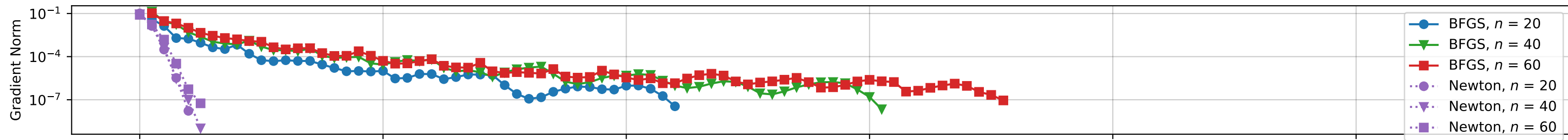
Work Units vs Control Variables



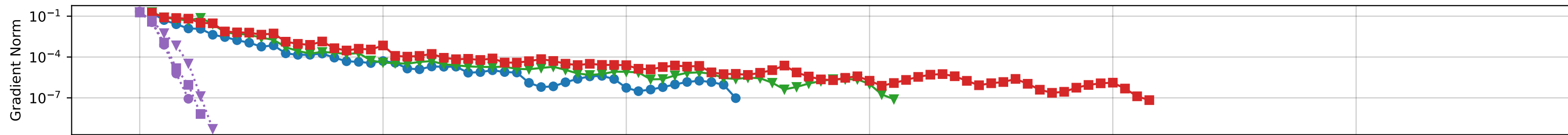
Reduced-space Design Cycles vs Control Variables



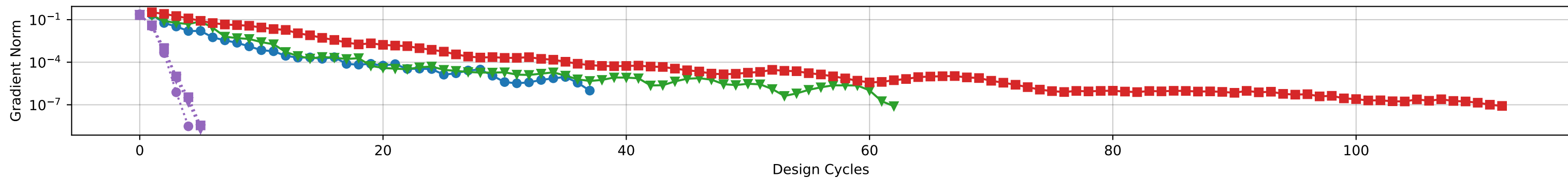
Reduced-space Gradient vs Design Cycles  
 $m = 8248$



$m = 32992$



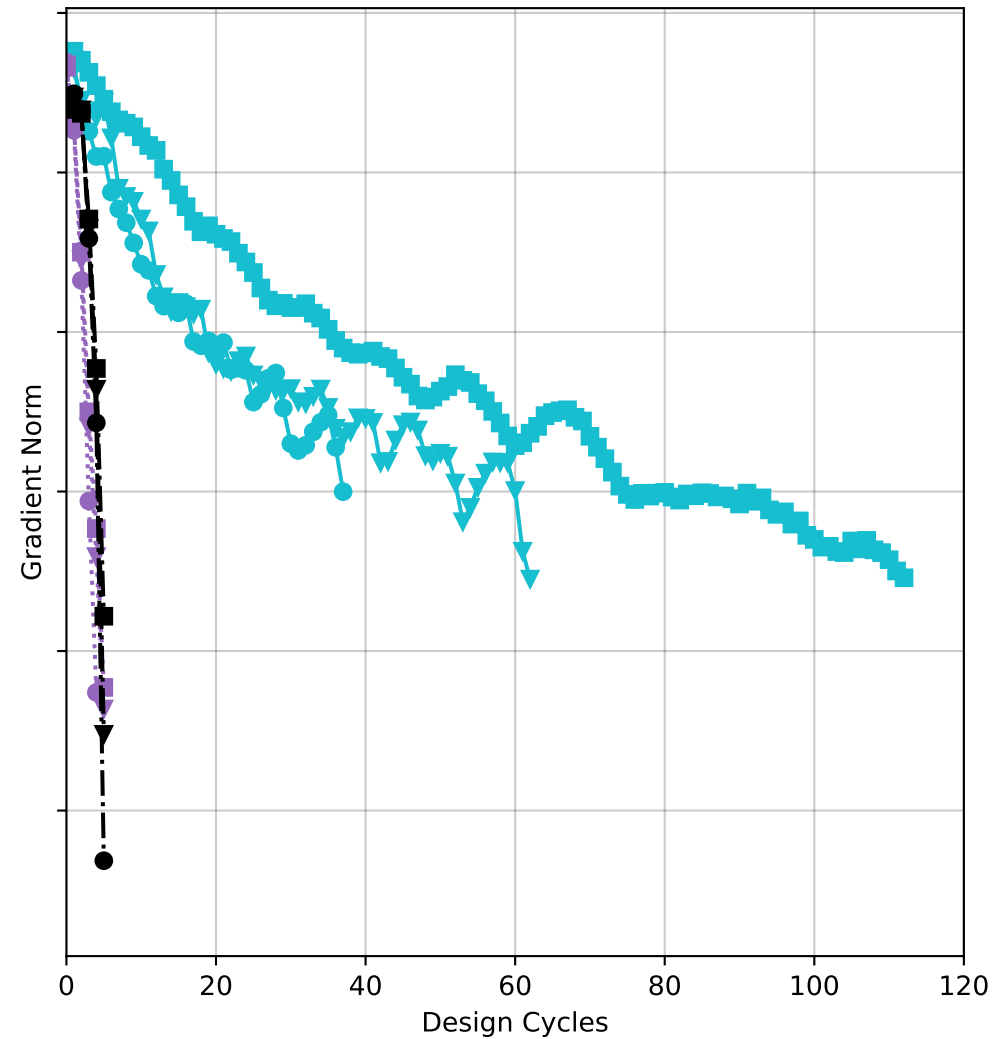
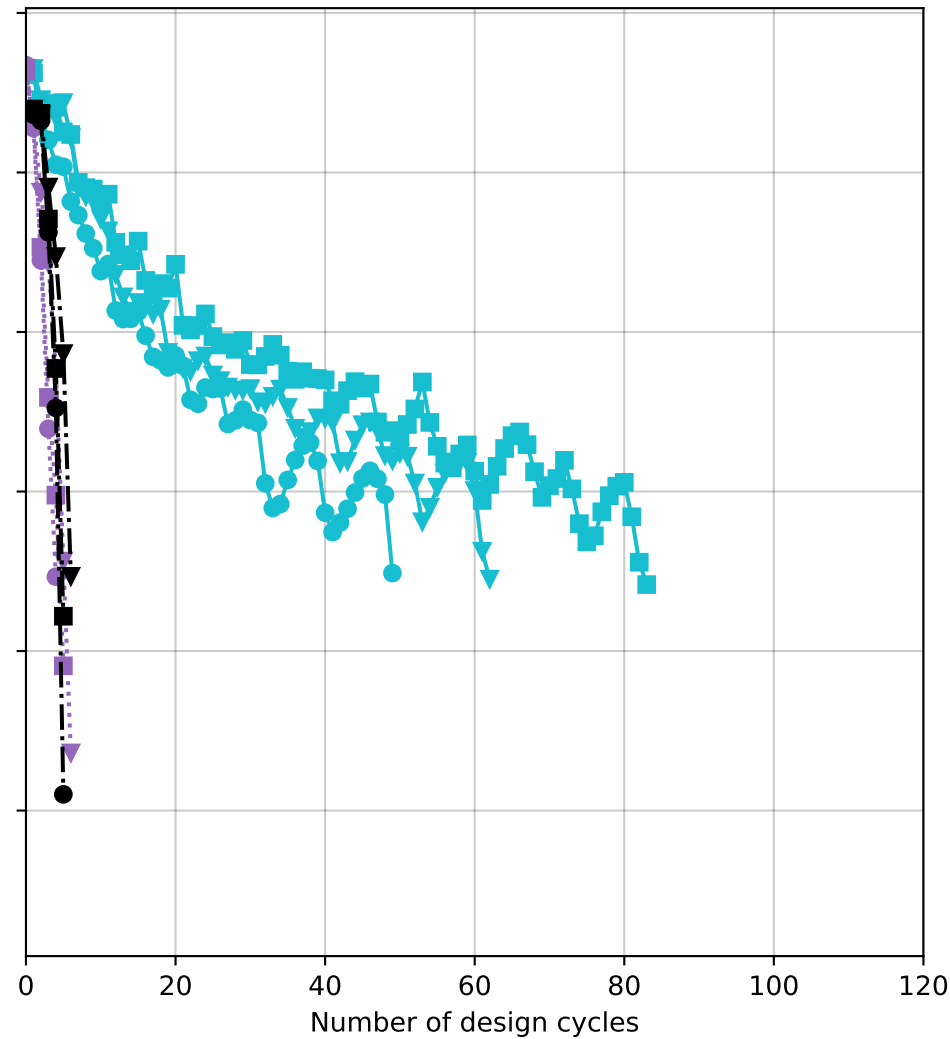
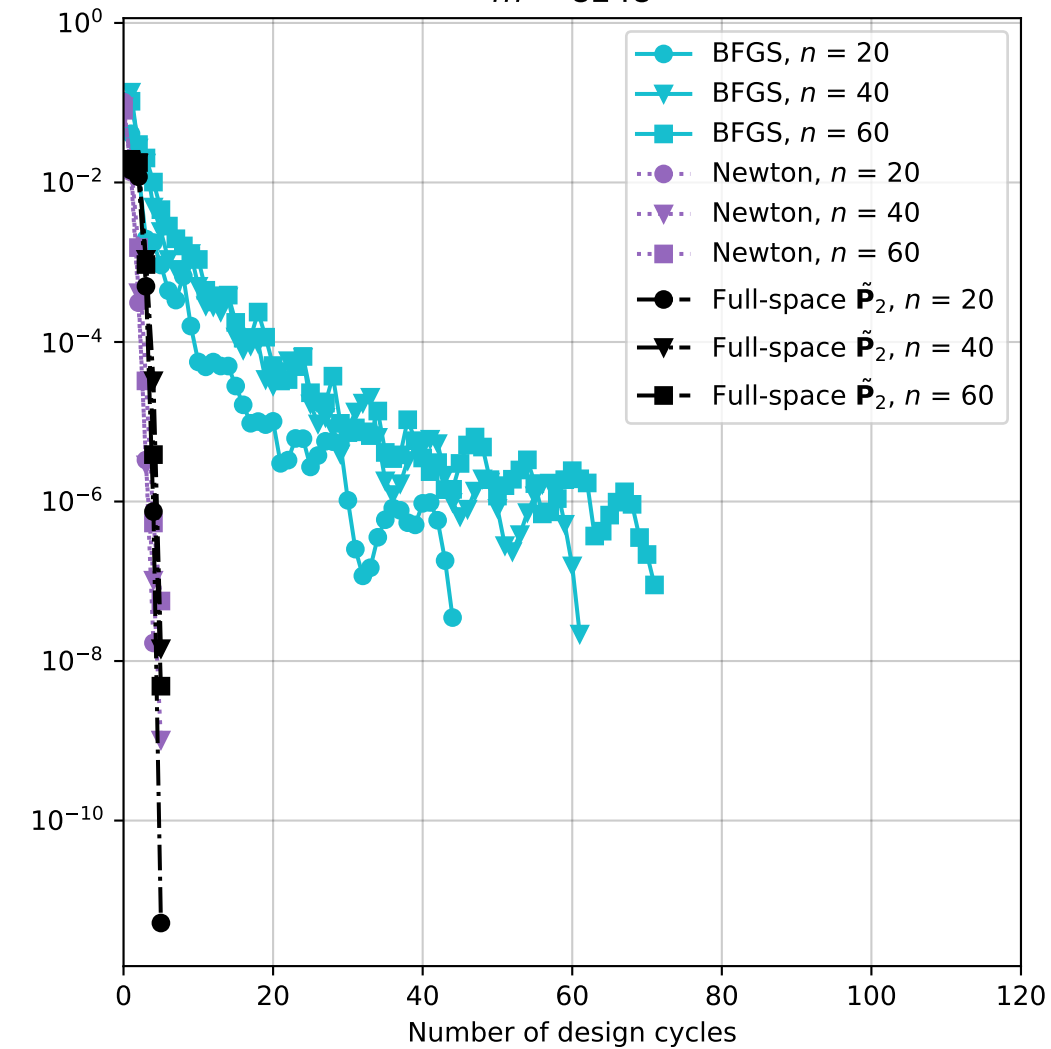
$m = 74232$



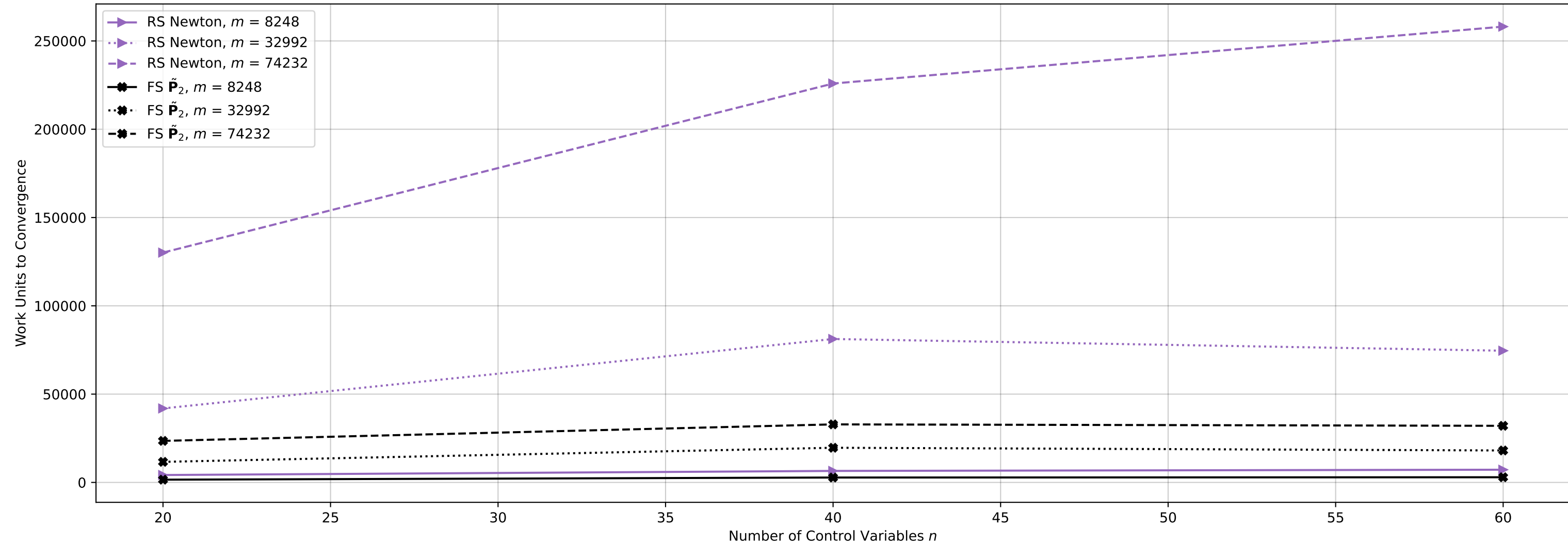
$m = 8248$

Gradient vs Design Cycles  
 $m = 32992$

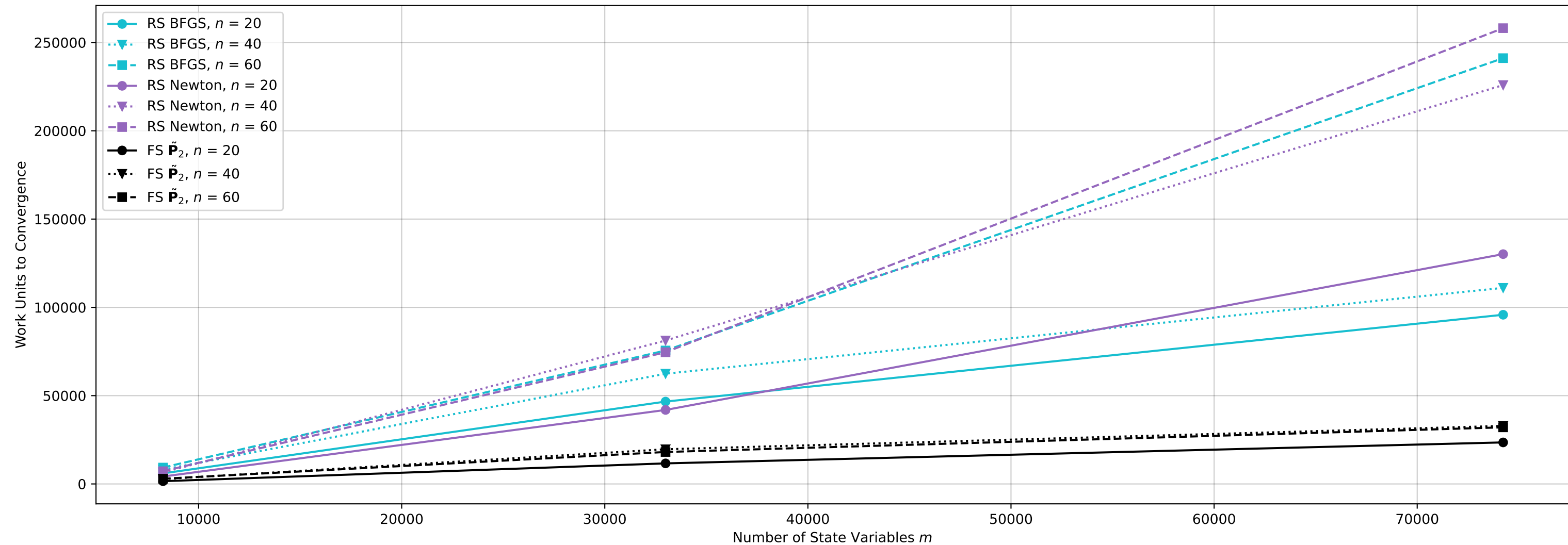
$m = 74232$



Work Units vs Control Variables



Work Units vs State Variables



Gradient Norm vs Design Cycles  $m = 32992$

