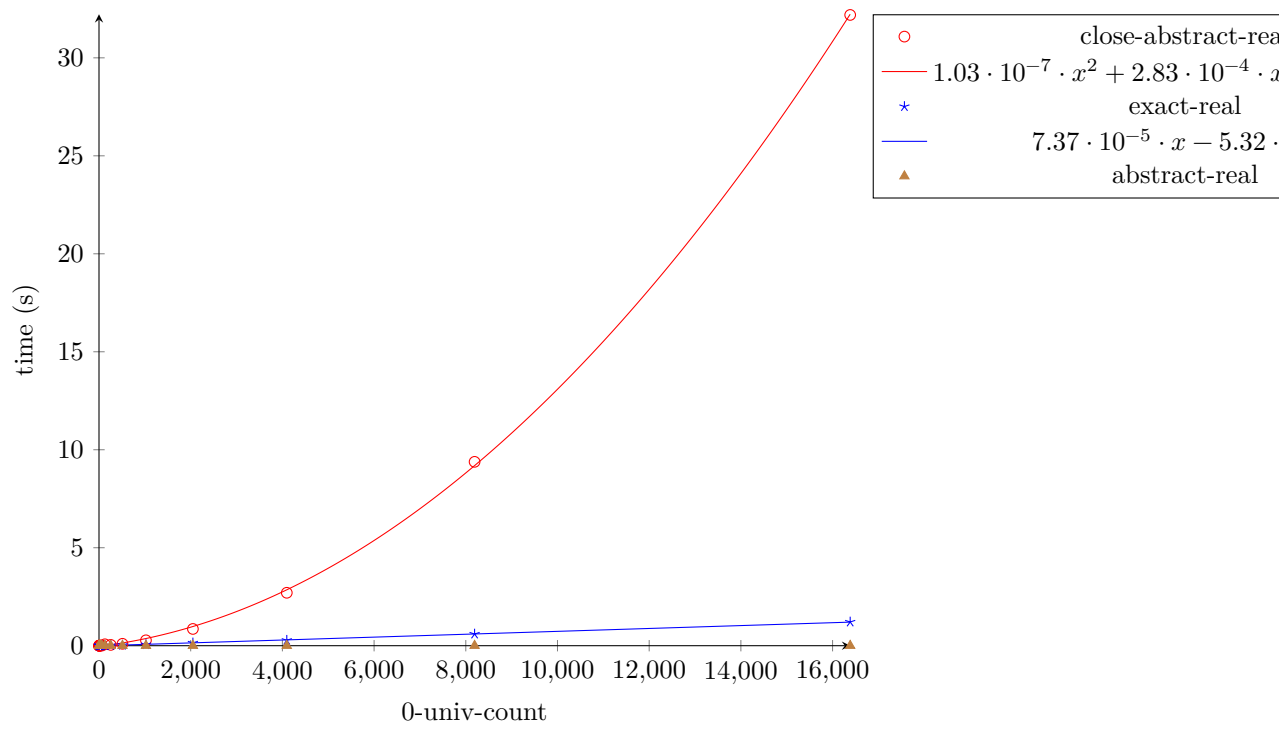Figure 1: timing-pattern

1

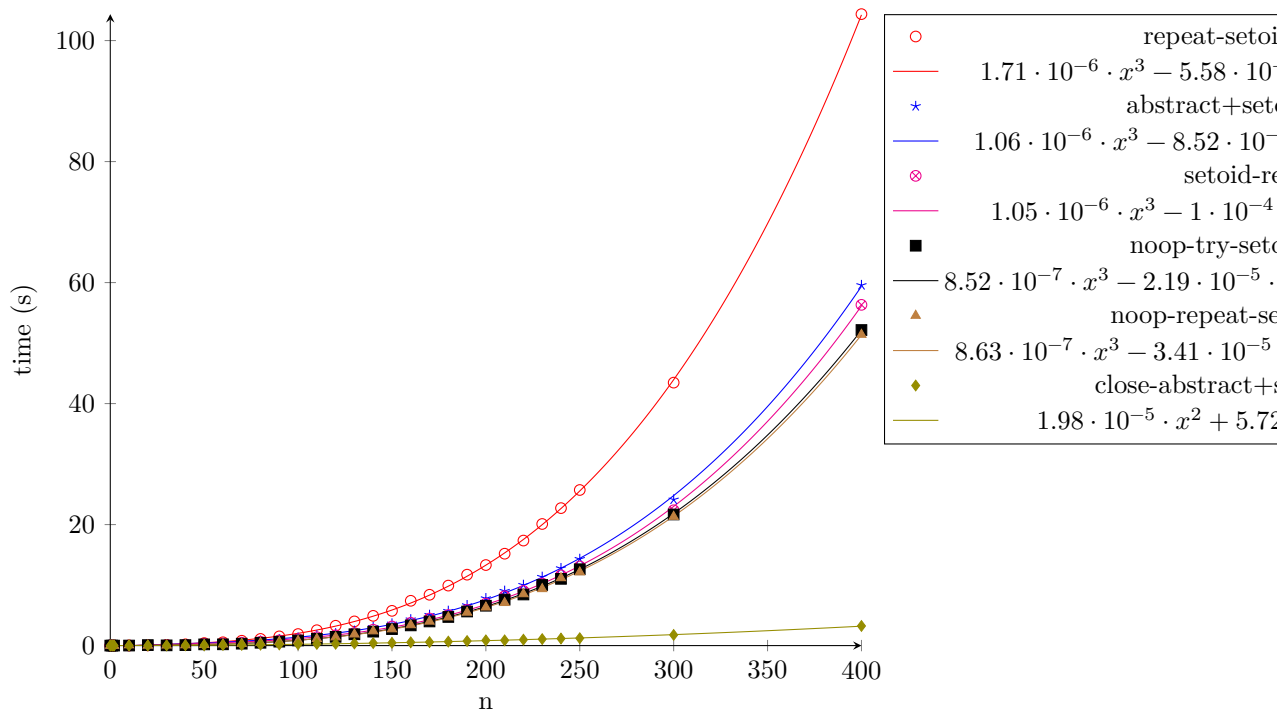Figure 2: timing-n-polymorphic-universes param-1-n 0

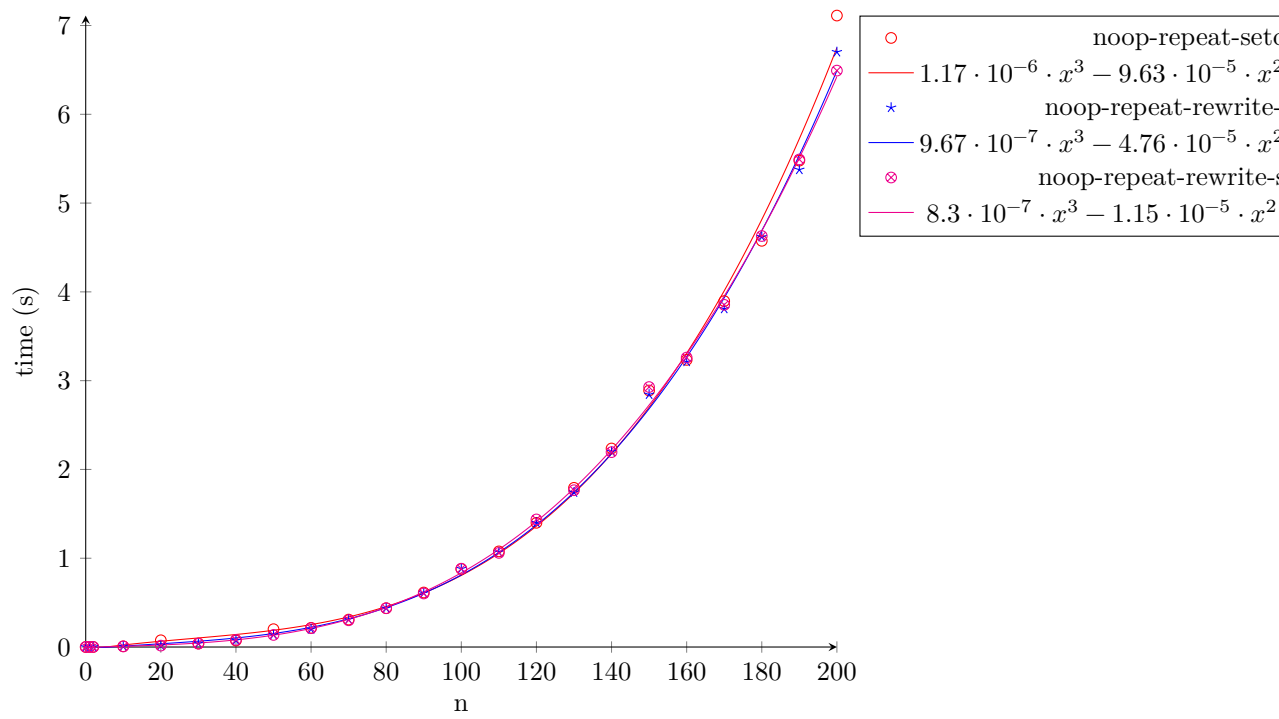Figure 3: timing-repeat-setoid-rewrite-under-binders

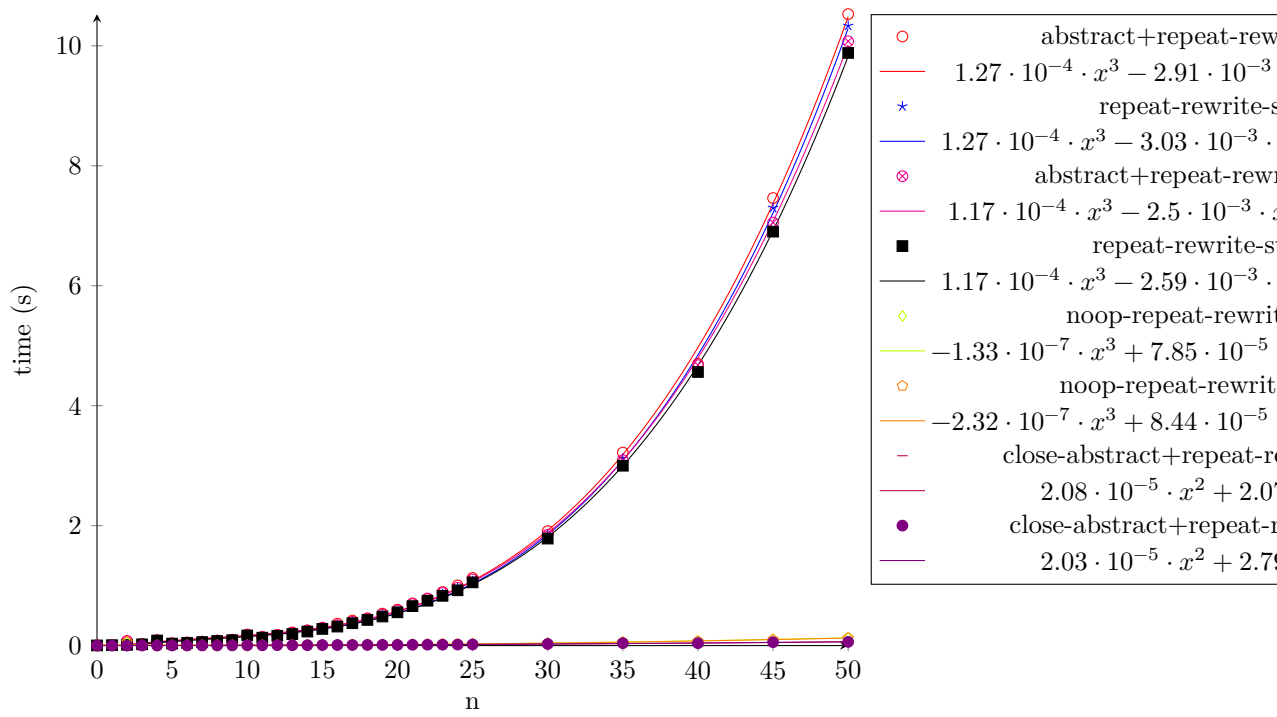Figure 4: timing-repeat-setoid-rewrite-under-binders-noop

4

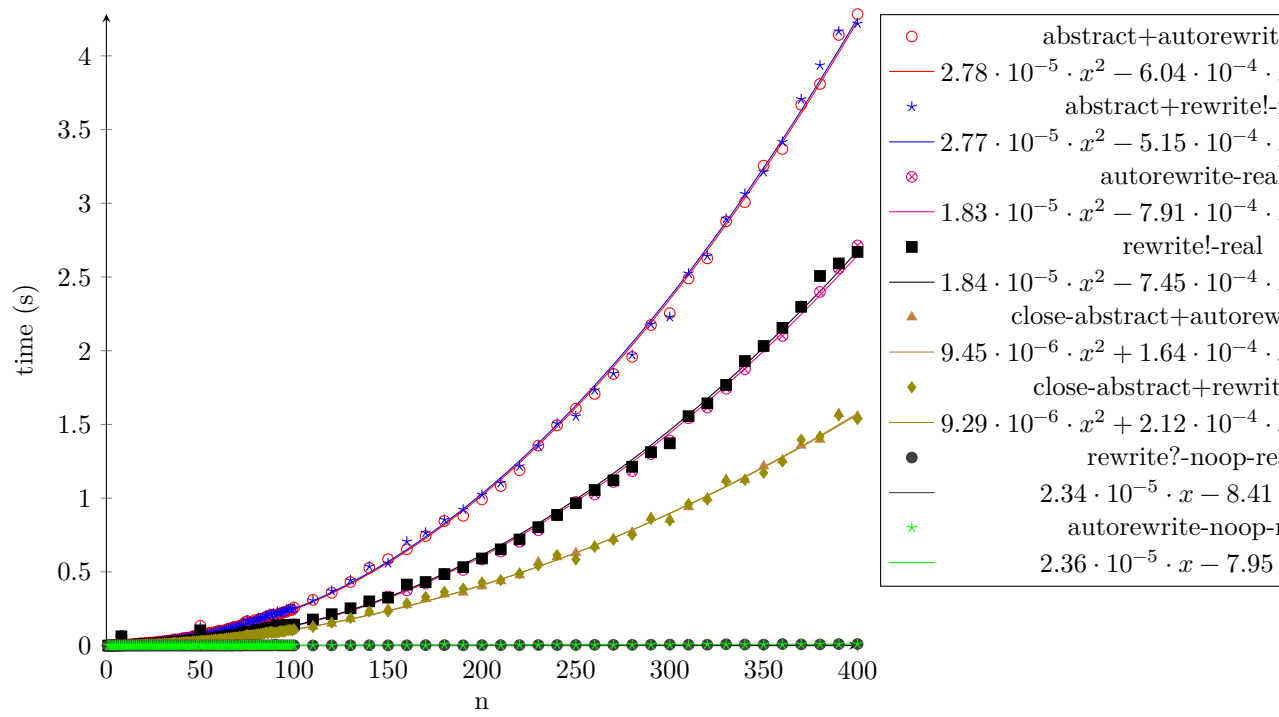Figure 5: timing-rewrite-strat-under-binders
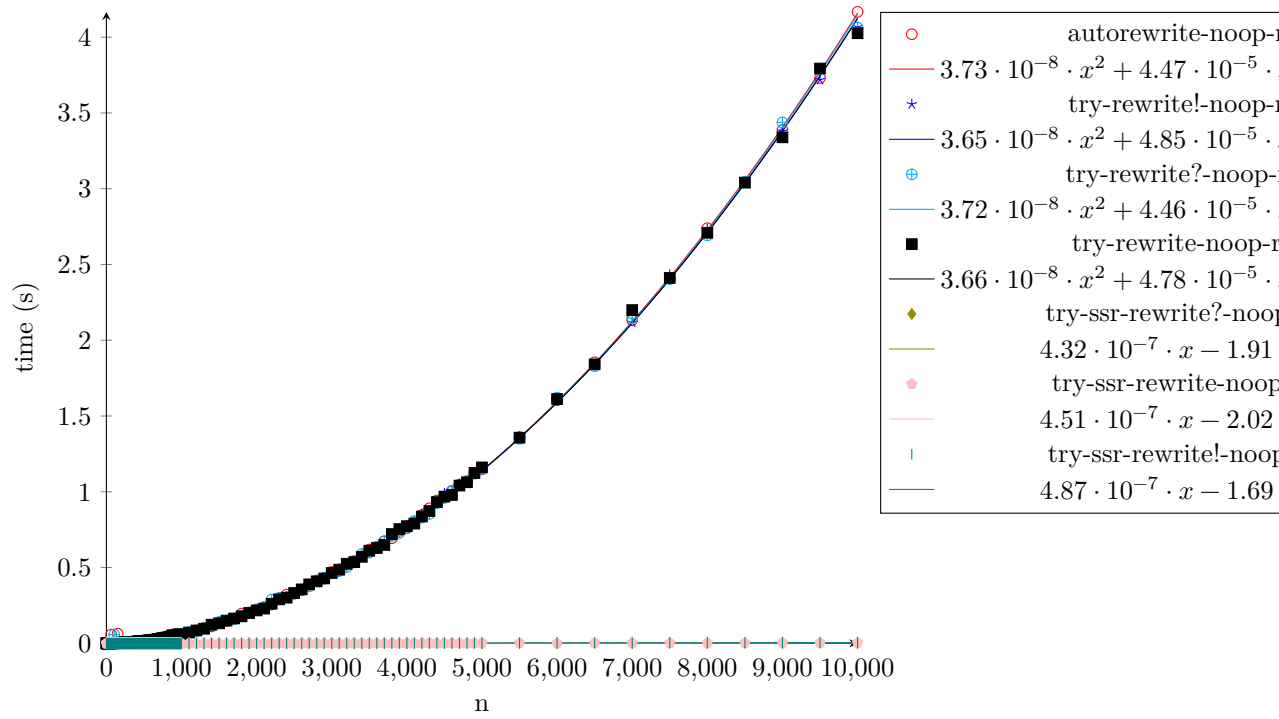
Figure 6: timing-rewrite-repeated-app-autorewrite

6

Figure 7: timing-rewrite-repeated-app-autorewrite-noop

The legend, partially cut off on the right, includes:

- autorewrite-noop-n
- $3.73 \cdot 10^{-8} \cdot x^2 + 4.47 \cdot 10^{-5} \cdot x$
- try-rewrite!-noop-n
- $3.65 \cdot 10^{-8} \cdot x^2 + 4.85 \cdot 10^{-5} \cdot x$
- try-rewrite?-noop-n
- $3.72 \cdot 10^{-8} \cdot x^2 + 4.46 \cdot 10^{-5} \cdot x$
- try-rewrite-noop-n
- $3.66 \cdot 10^{-8} \cdot x^2 + 4.78 \cdot 10^{-5} \cdot x$
- try-ssr-rewrite?-noop
- $4.32 \cdot 10^{-7} \cdot x - 1.91$
- try-ssr-rewrite-noop
- $4.51 \cdot 10^{-7} \cdot x - 2.02$
- try-ssr-rewrite!-noop
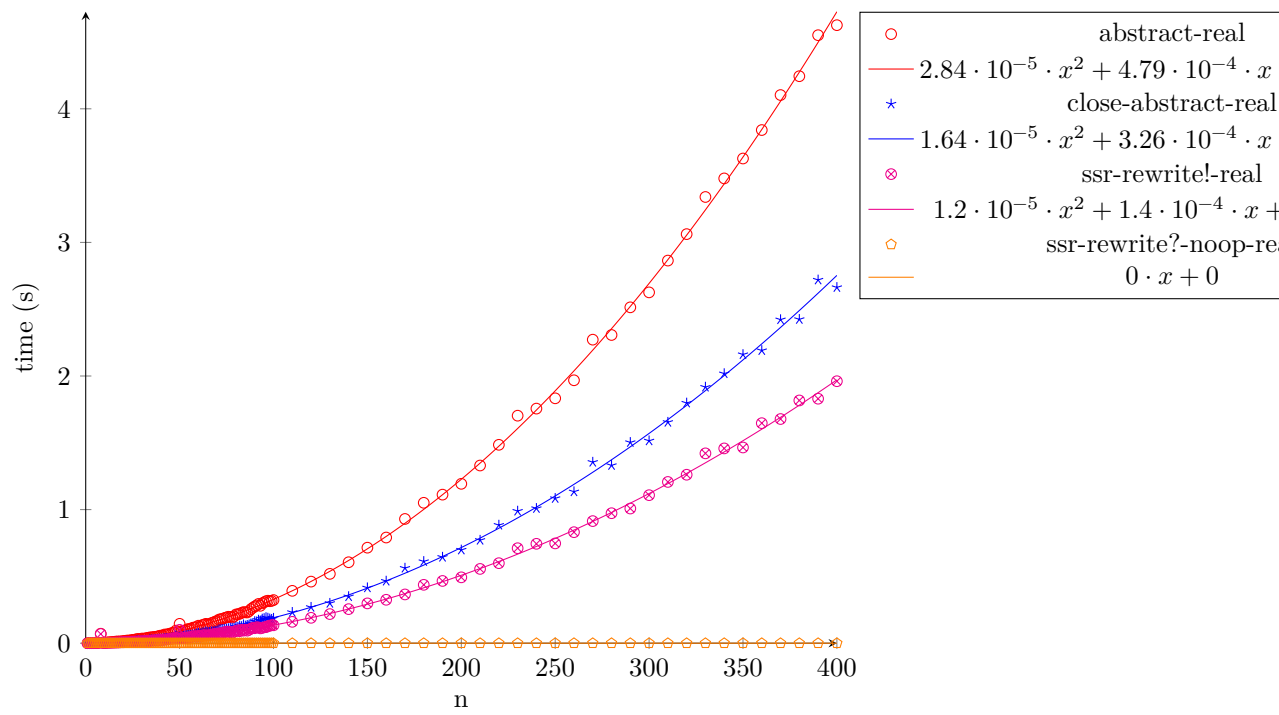- $4.87 \cdot 10^{-7} \cdot x - 1.69$

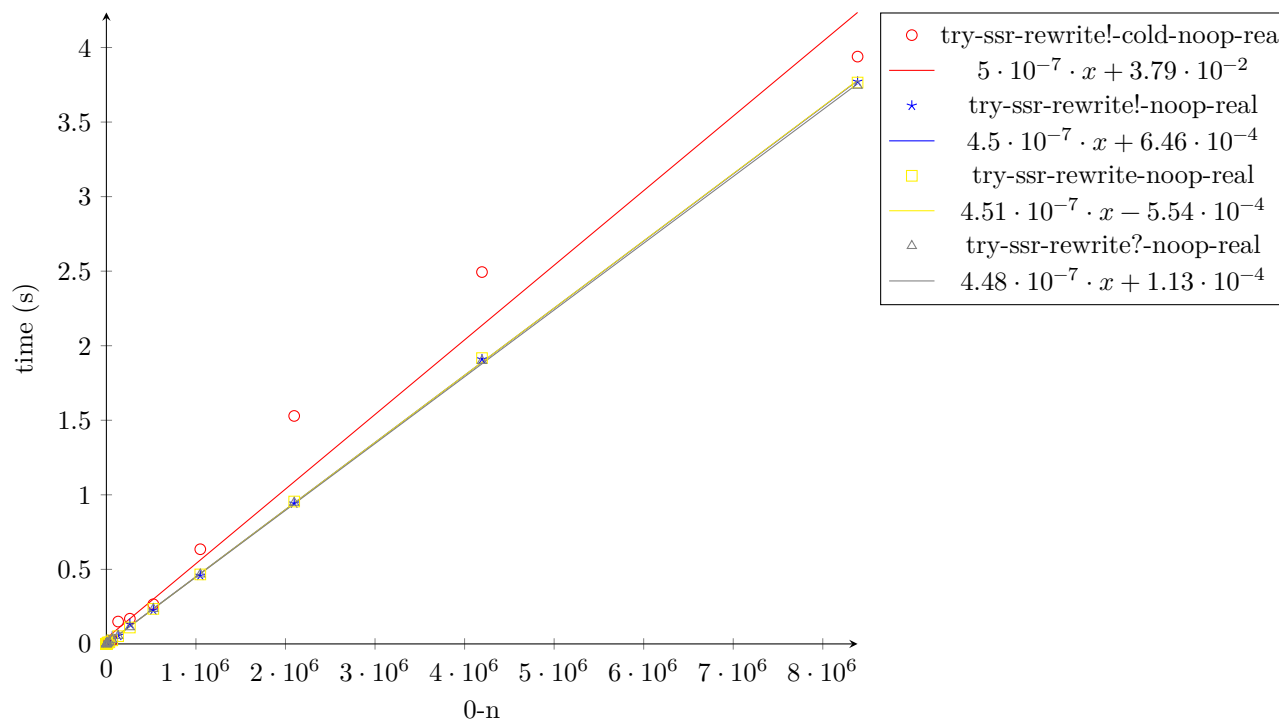Figure 8: timing-rewrite-repeated-app-ssrrewrite

8

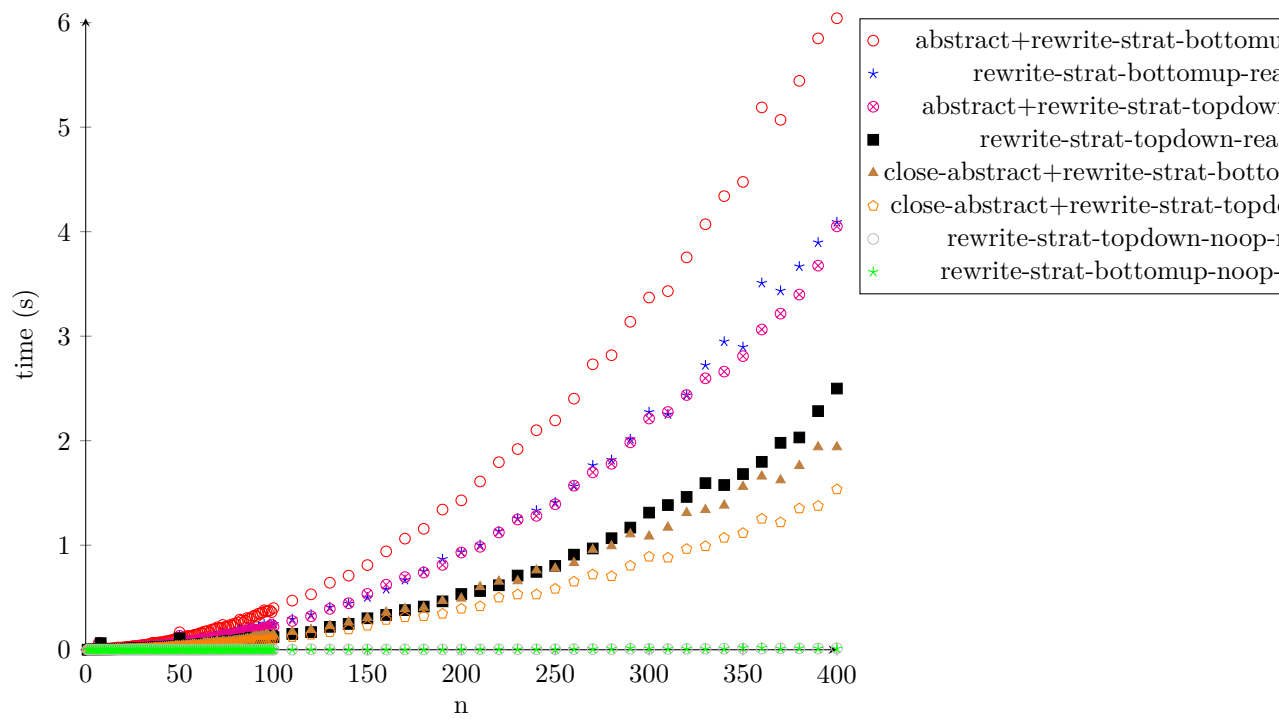Figure 9: timing-rewrite-repeated-app-ssrrewrite-noop param-1-lgn 1

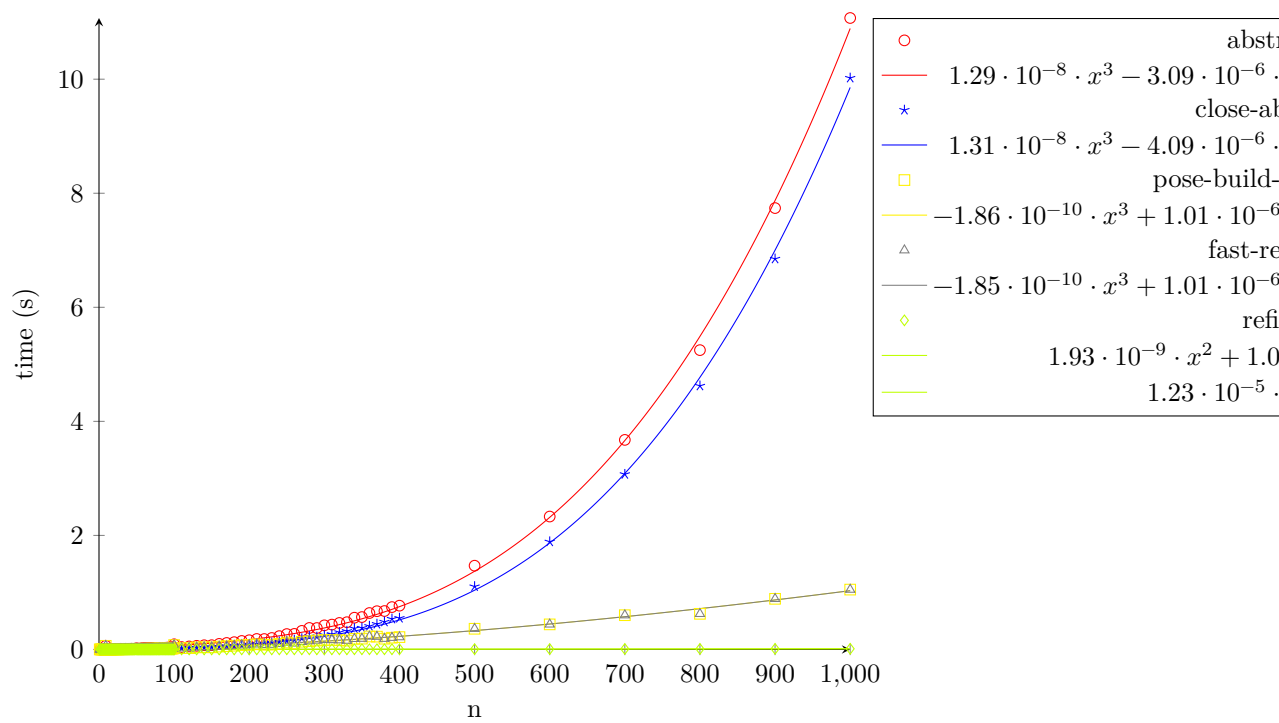Figure 10: timing-rewrite-repeated-app-rewrite-strat

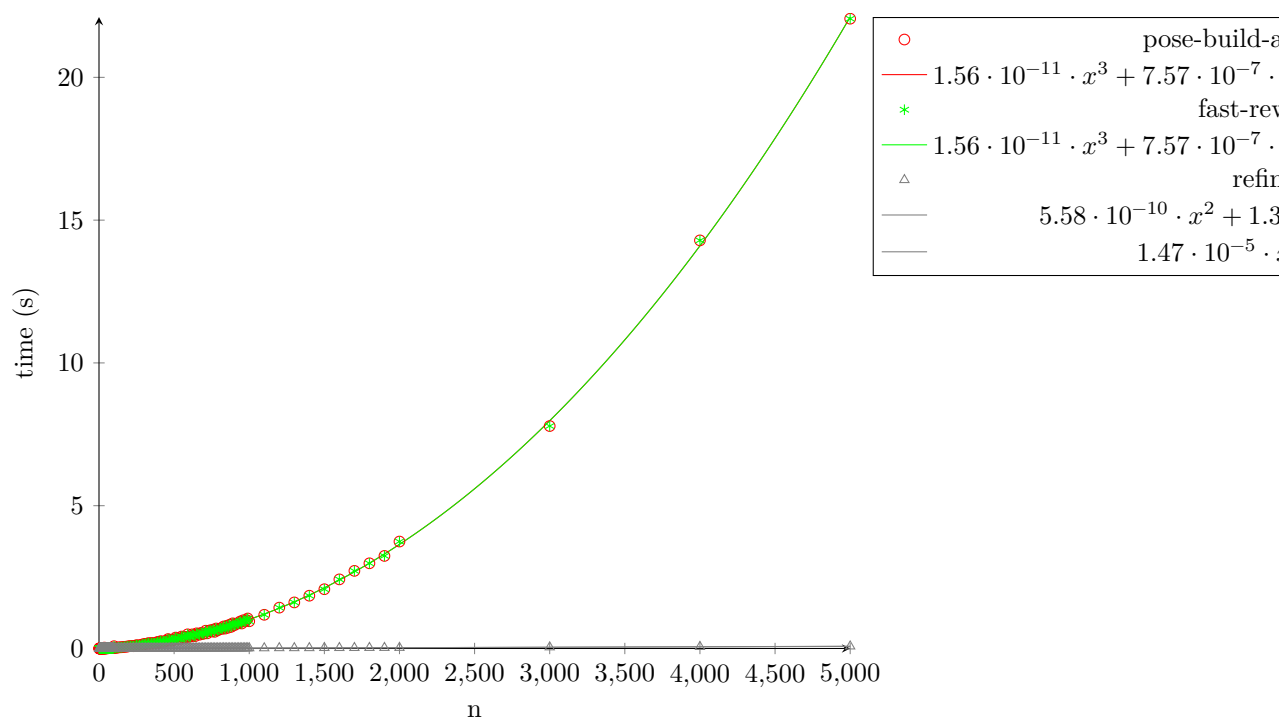Figure 11: timing-rewrite-repeated-app-fast-rewrite

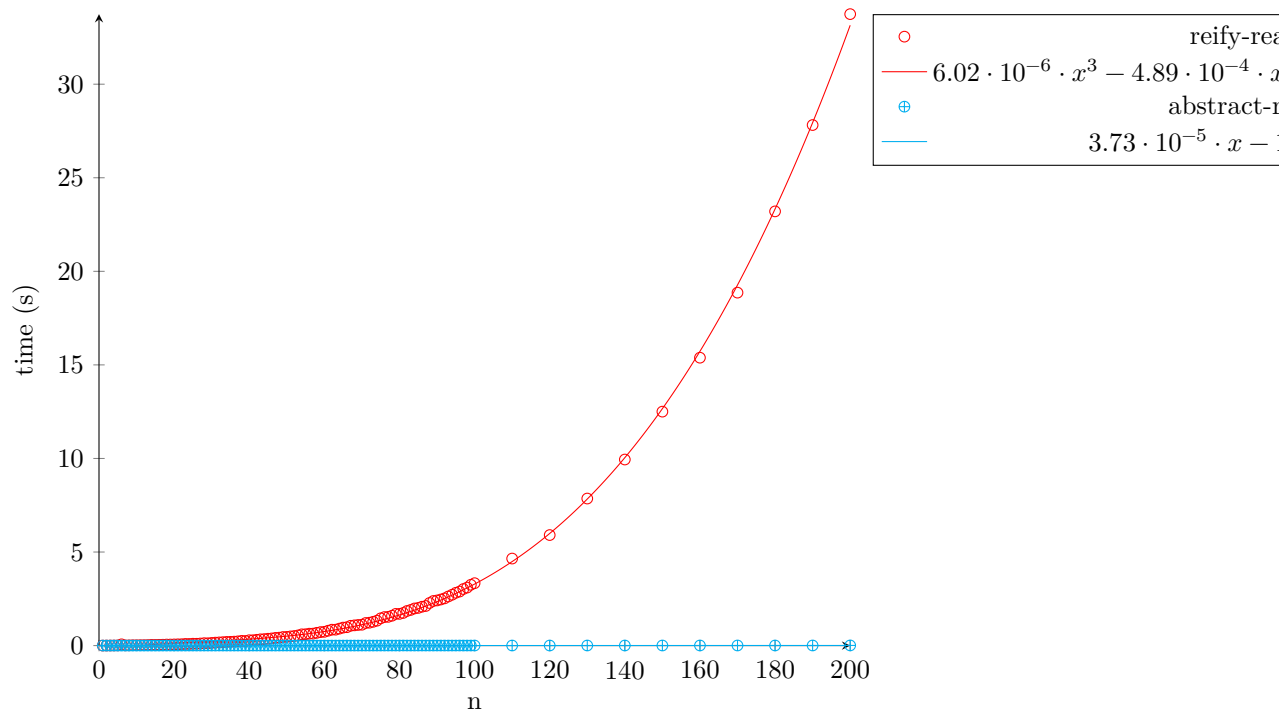Figure 12: timing-rewrite-repeated-app-fast-rewrite-no-abstract

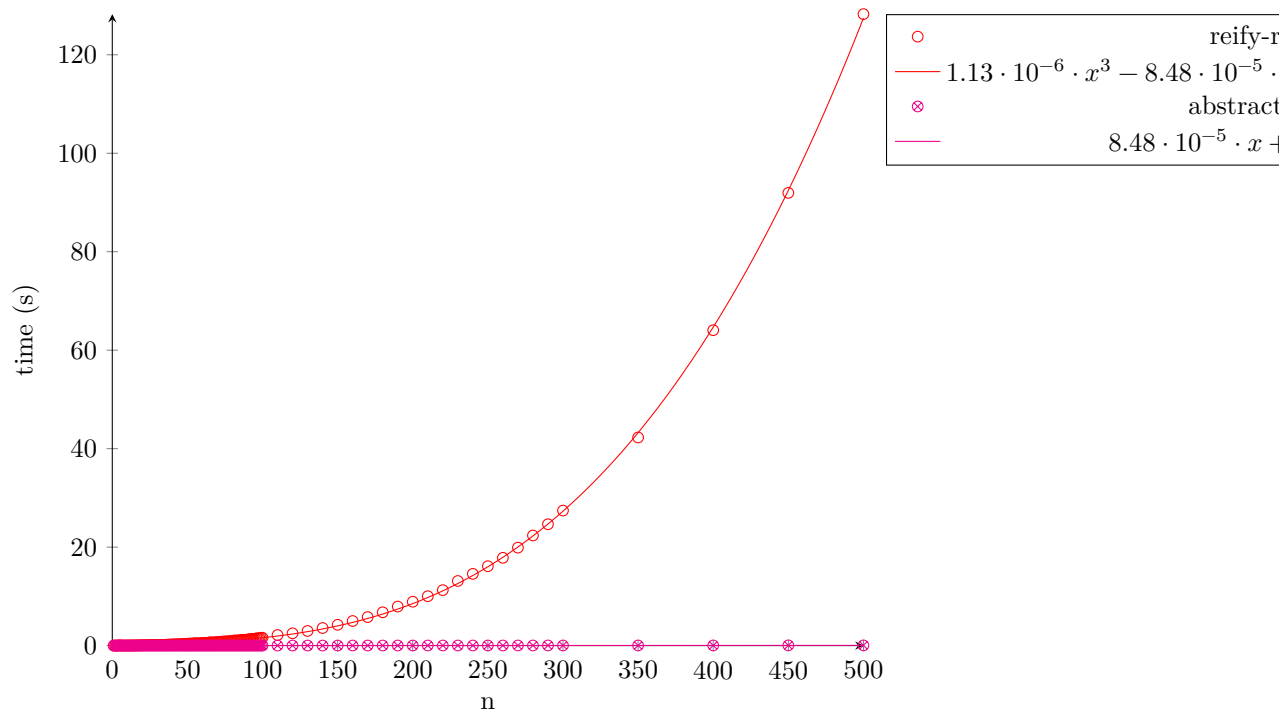Figure 13: timing-typeclass-reification-let-in-HOAS

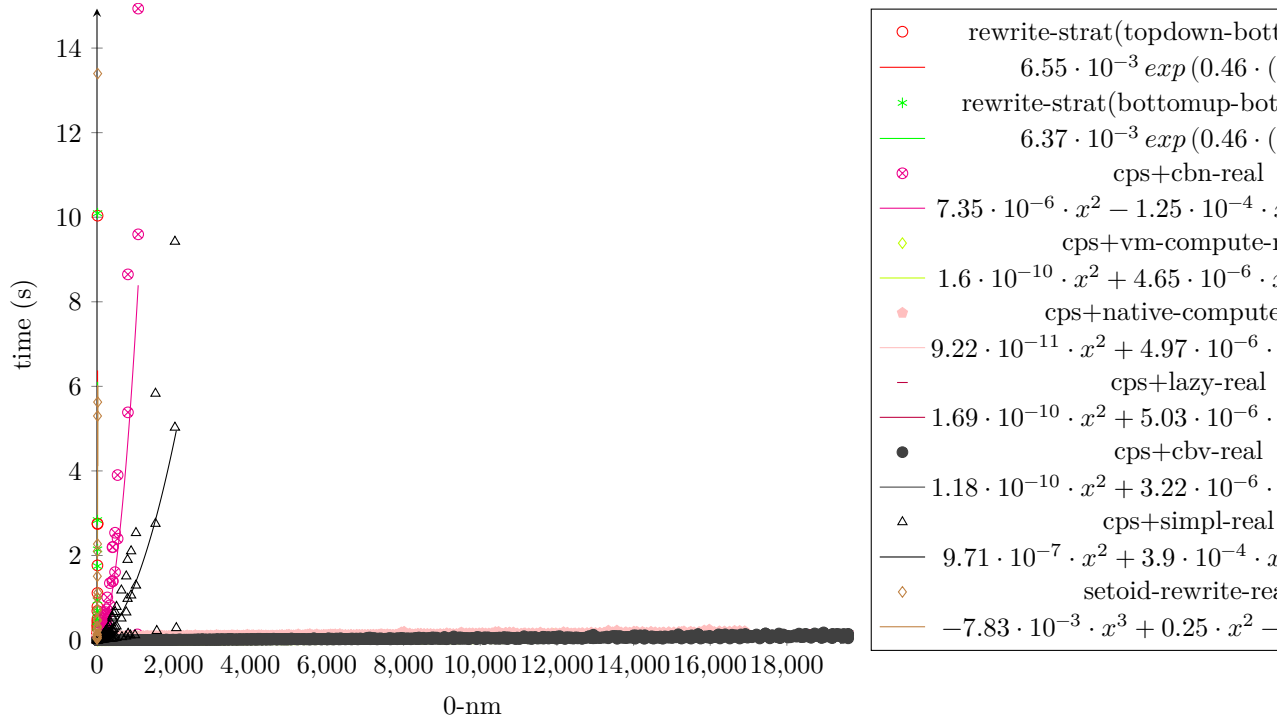Figure 14: timing-typeclass-reification-let-in-PHOAS

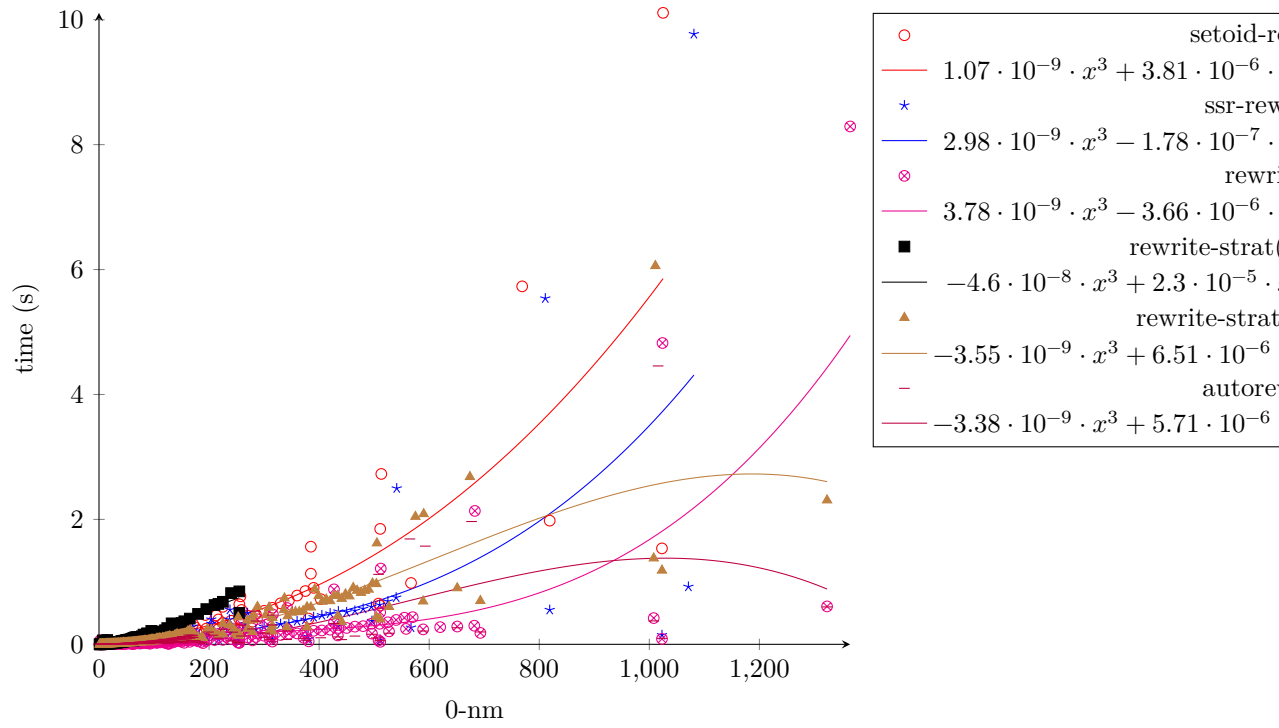Figure 15: timing-rewrite-lift-lets-map param-1-n 1, param-2-m 1

Figure 16: timing-rewrite-plus-0-tree param-1-n 0, param-2-m 1, param-3-input-size 5, param-4-output-size 3, param-5-num-rewrites 1

time (s)

10

8

6

4

2

0

0 5,000 10,000 15,000 20,000 25,000 30,000 35,000 40,000 45,000

n

cbn

$1.71 \cdot 10^{-5} \cdot x^3 + 5.15 \cdot 10^{-4} \cdot x$

simp

$1.67 \cdot 10^{-5} \cdot x^3 + 7.91 \cdot 10^{-4} \cdot x$

lazy

$9.2 \cdot 10^{-7} \cdot x^2 - 1.41$

cbv

$2.88 \cdot 10^{-7} \cdot x^2 + 1 \cdot$

vm-com

$1.48 \cdot 10^{-8} \cdot x^2 + 6.25$

native-com

$3.8 \cdot 10^{-9} \cdot x^2 - 3.09$

native-com

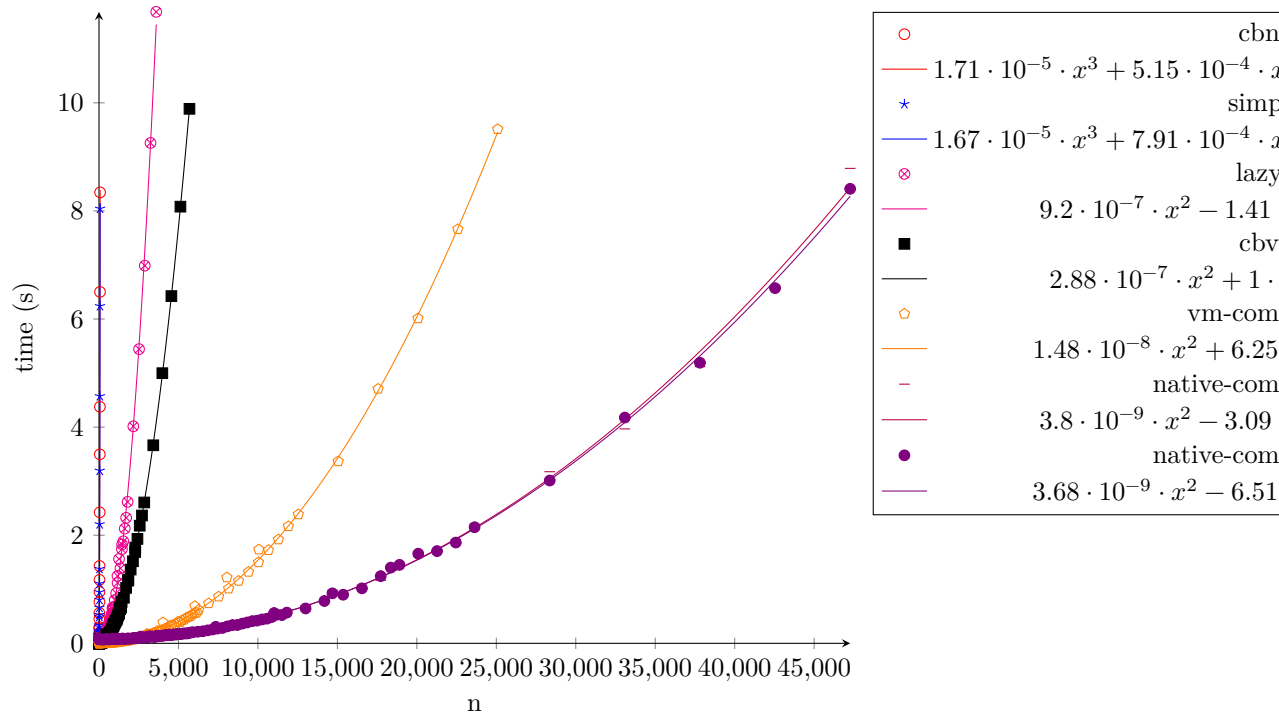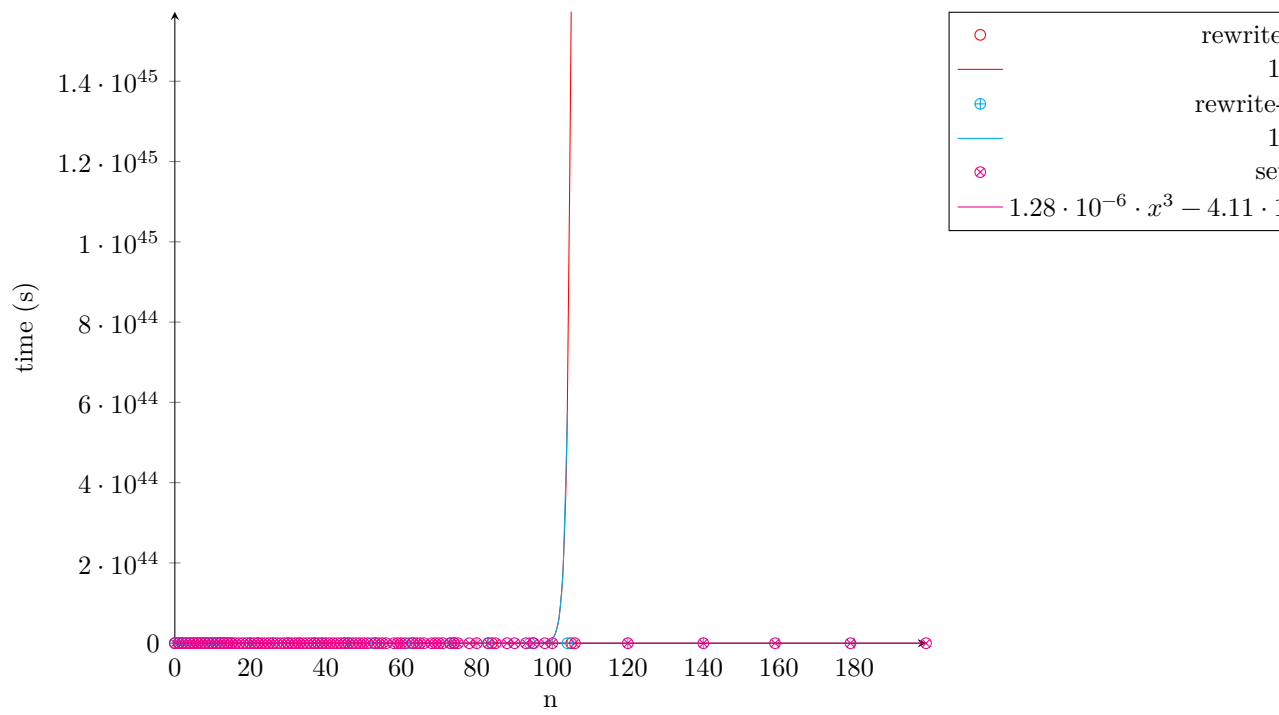$3.68 \cdot 10^{-9} \cdot x^2 - 6.51$

Figure 17: timing-sieve-of-eratosthenes

Figure 18: timing-rewrite-under-lets-plus-0