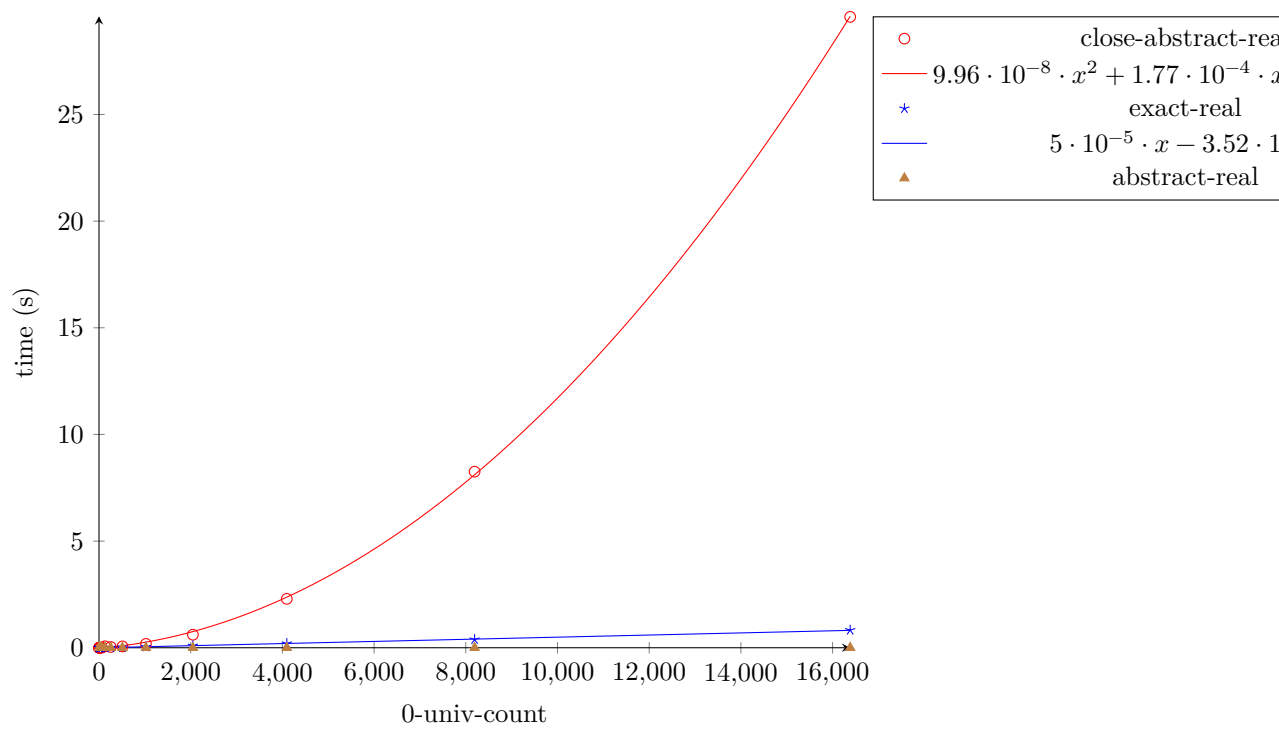Figure 1: timing-pattern

1

Figure 2: timing-n-polymorphic-universes param-1-n 0
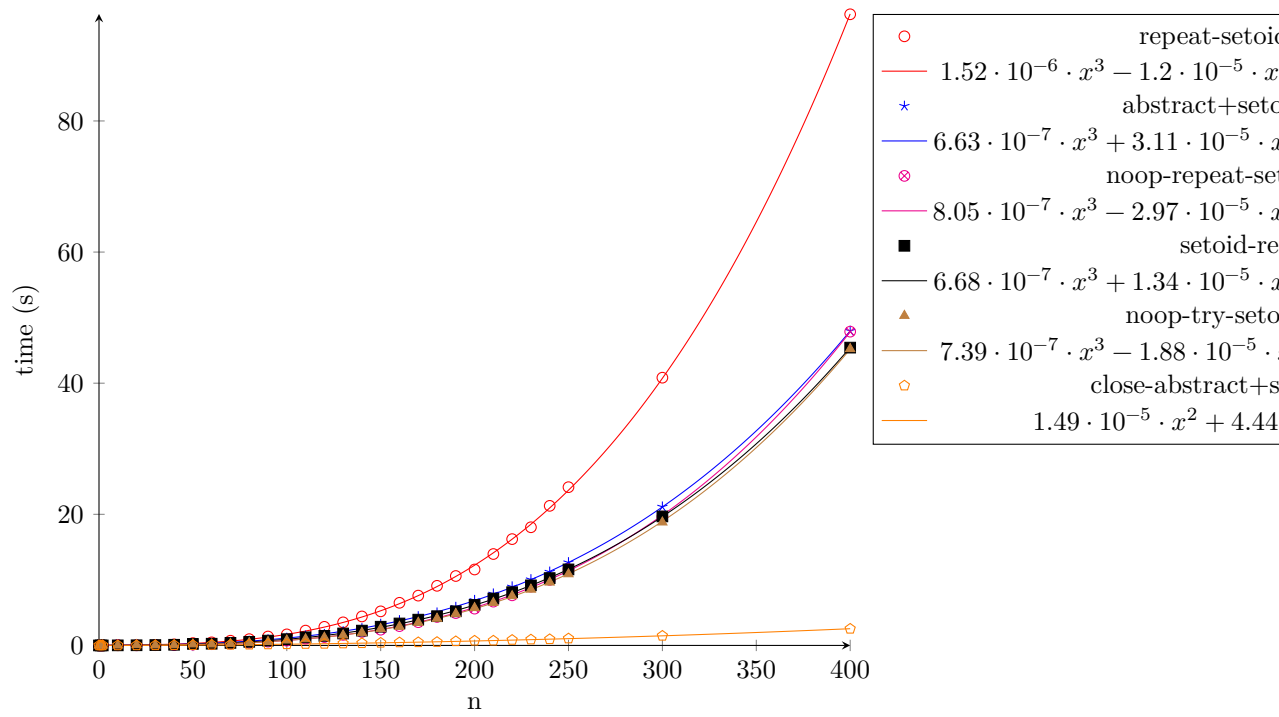
Figure 3: timing-repeat-setoid-rewrite-under-binders
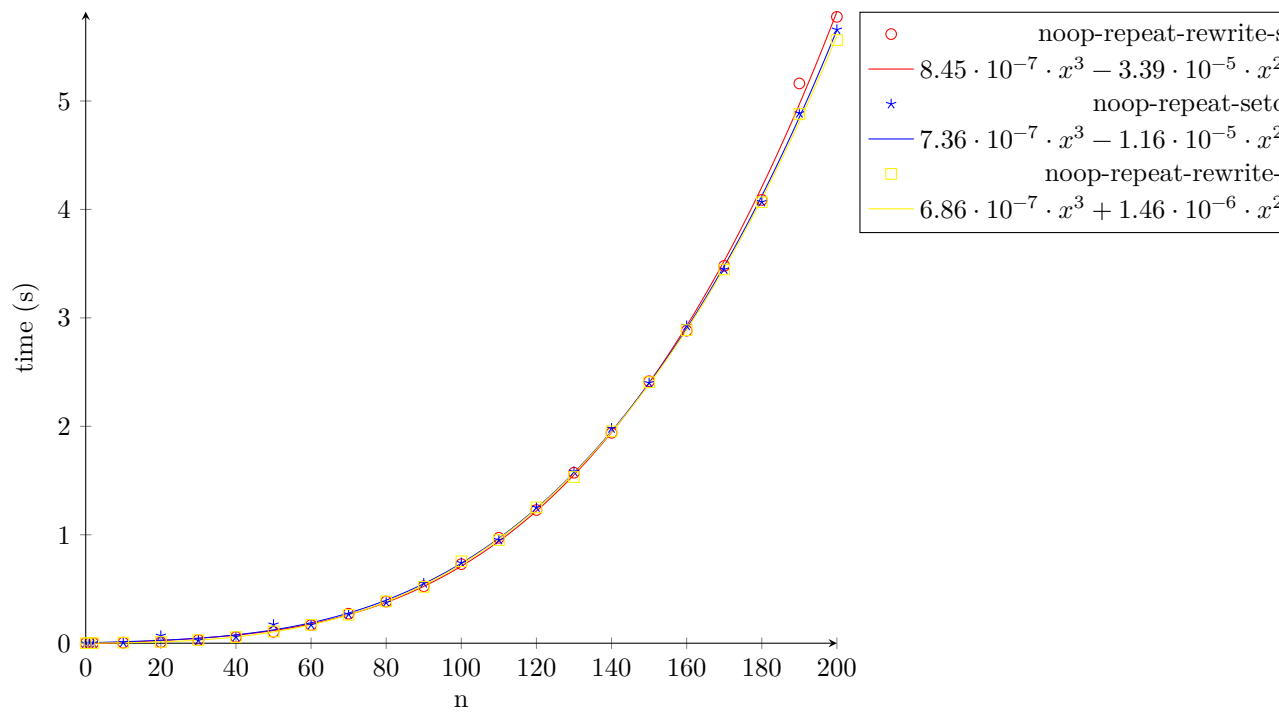
Figure 4: timing-repeat-setoid-rewrite-under-binders-noop

The figure legend partially shows:

- $\circ$ noop-repeat-rewrite-s
- $8.45 \cdot 10^{-7} \cdot x^3 - 3.39 \cdot 10^{-5} \cdot x^2$
- $*$ noop-repeat-set
- $7.36 \cdot 10^{-7} \cdot x^3 - 1.16 \cdot 10^{-5} \cdot x^2$
- $\square$ noop-repeat-rewrite-
- $6.86 \cdot 10^{-7} \cdot x^3 + 1.46 \cdot 10^{-6} \cdot x^2$
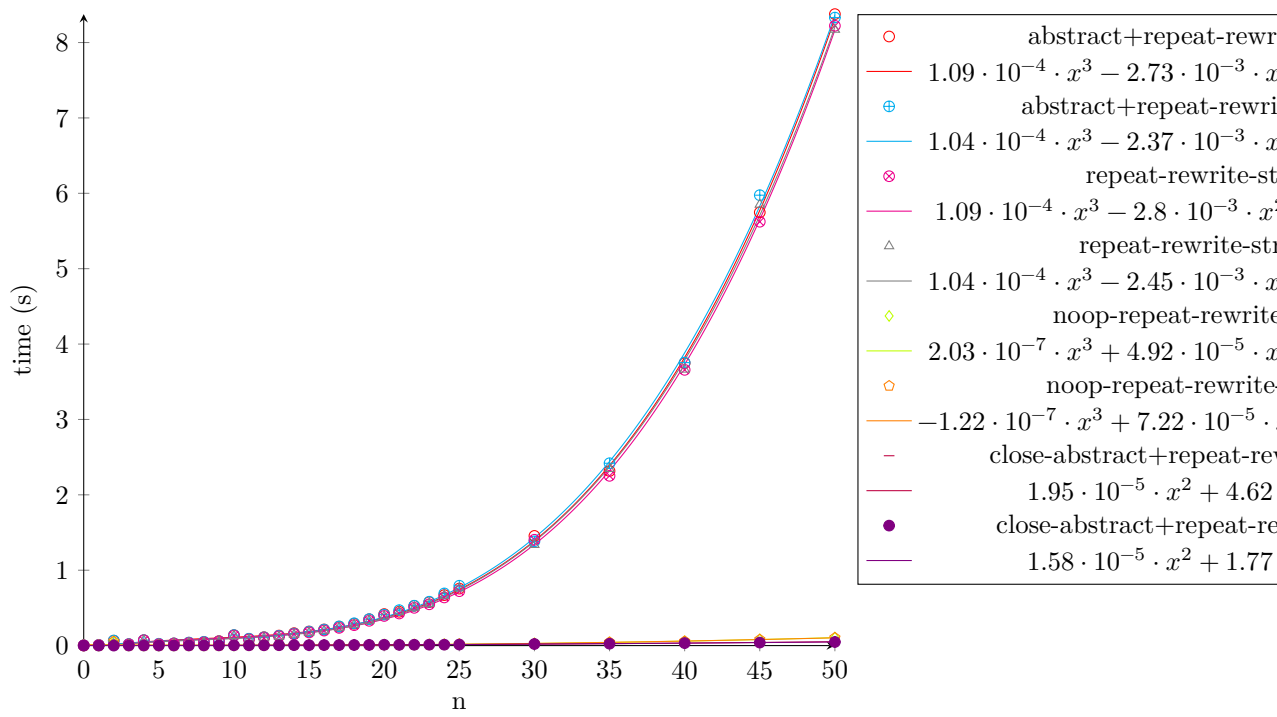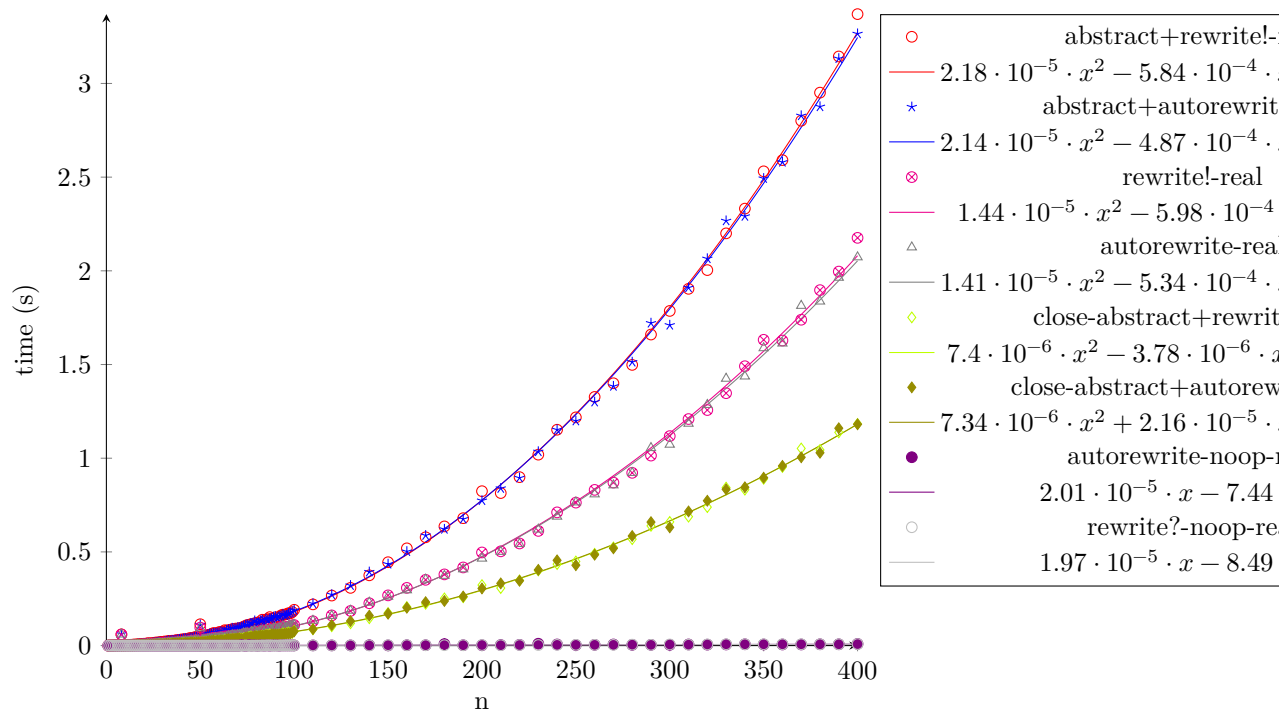
Figure 5: timing-rewrite-strat-under-binders

Figure 6: timing-rewrite-repeated-app-autorewrite
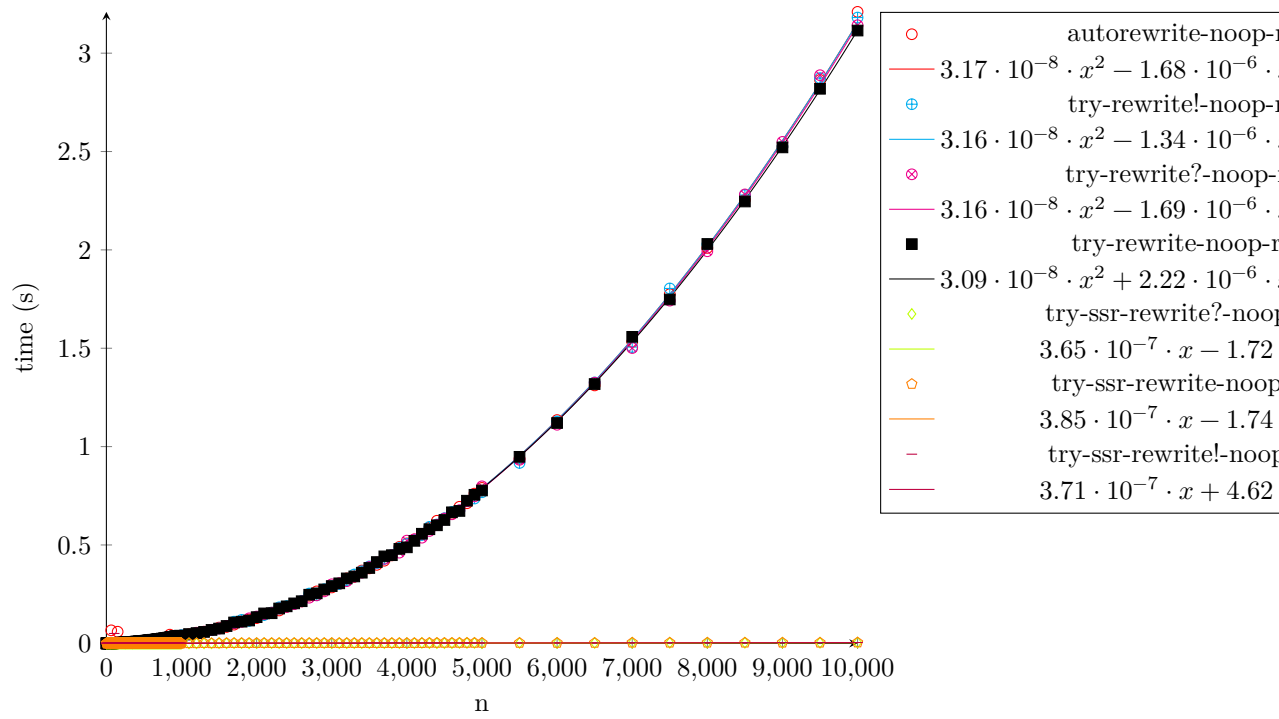
Figure 7: timing-rewrite-repeated-app-autorewrite-noop

The legend of the figure contains the following entries:

autorewrite-noop-r
$3.17 \cdot 10^{-8} \cdot x^2 - 1.68 \cdot 10^{-6} \cdot$
try-rewrite!-noop-r
$3.16 \cdot 10^{-8} \cdot x^2 - 1.34 \cdot 10^{-6} \cdot$
try-rewrite?-noop-
$3.16 \cdot 10^{-8} \cdot x^2 - 1.69 \cdot 10^{-6} \cdot$
try-rewrite-noop-r
$3.09 \cdot 10^{-8} \cdot x^2 + 2.22 \cdot 10^{-6} \cdot$
try-ssr-rewrite?-noop
$3.65 \cdot 10^{-7} \cdot x - 1.72$
try-ssr-rewrite-noop
$3.85 \cdot 10^{-7} \cdot x - 1.74$
try-ssr-rewrite!-noop
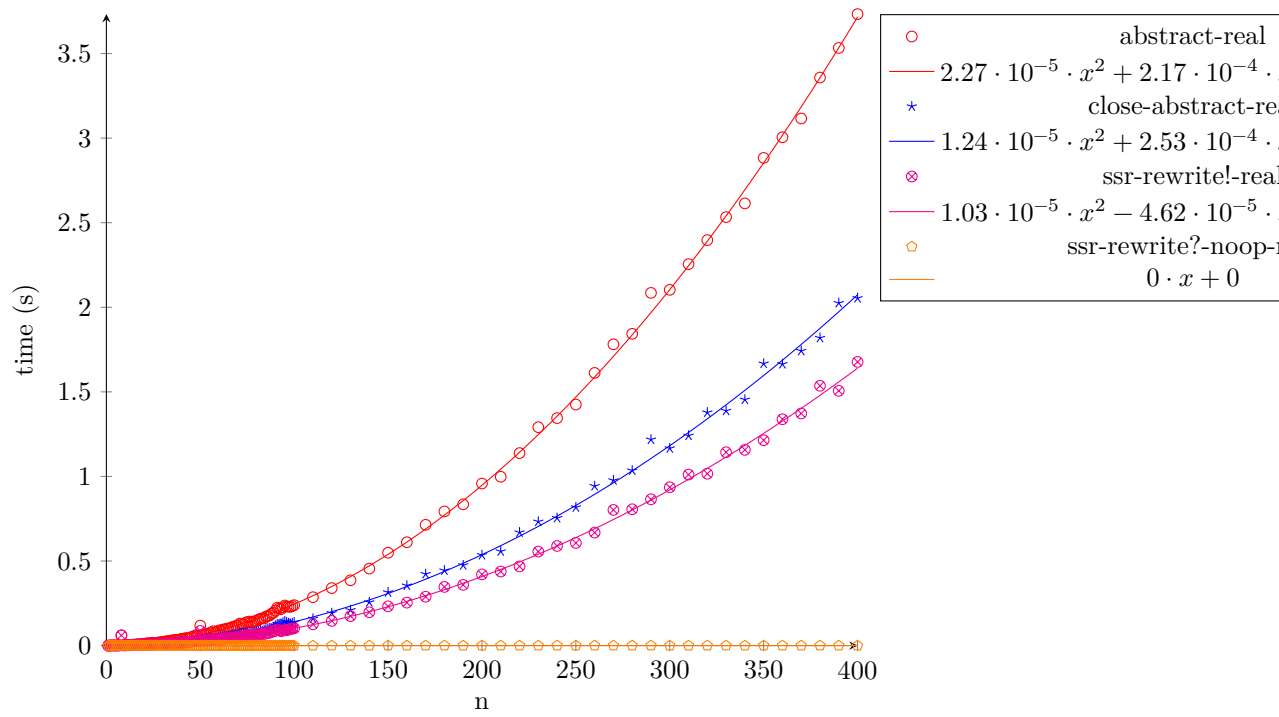$3.71 \cdot 10^{-7} \cdot x + 4.62$

7

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

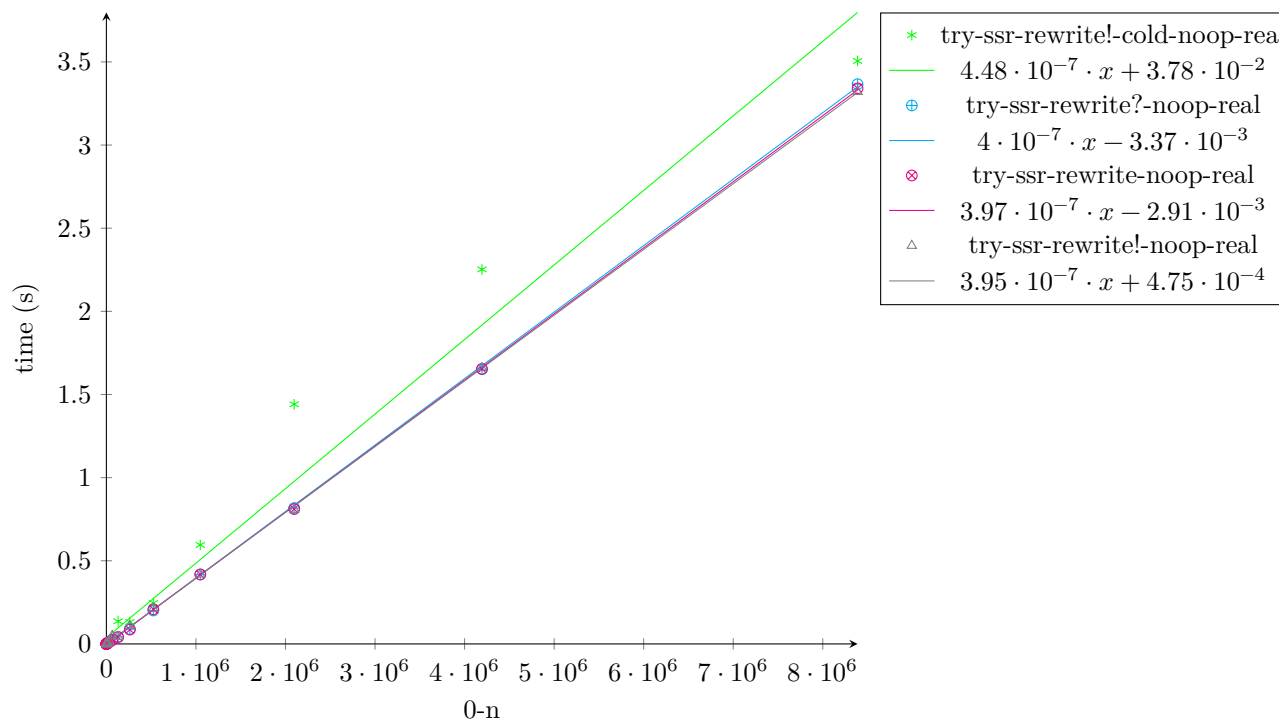Figure 9: timing-rewrite-repeated-app-ssrrewrite-noop param-1-lgn 1

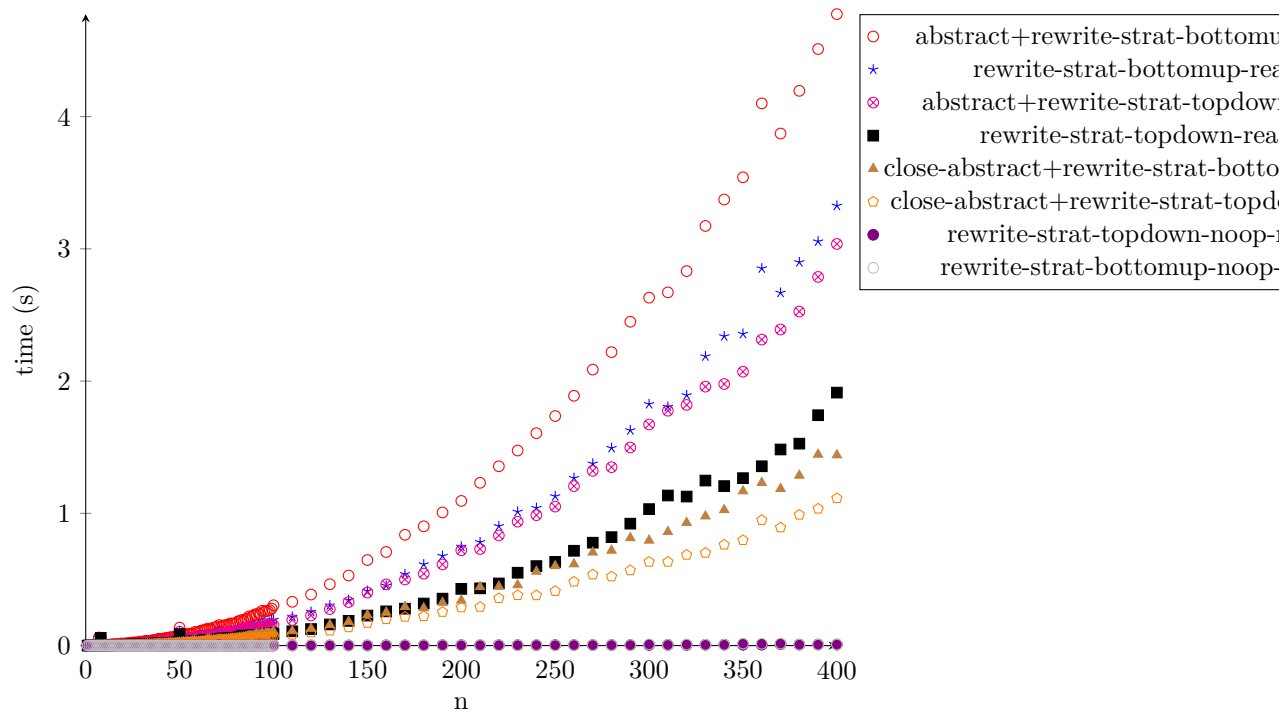Figure 10: timing-rewrite-repeated-app-rewrite-strat

The chart legend includes:
- abstract+rewrite-strat-bottomu...
- rewrite-strat-bottomup-rea...
- abstract+rewrite-strat-topdow...
- rewrite-strat-topdown-rea...
- close-abstract+rewrite-strat-botto...
- close-abstract+rewrite-strat-topd...
- rewrite-strat-topdown-noop-...
- rewrite-strat-bottomup-noop-...

Axis labels: time (s), n

time (s)

7

6

5

4

3

2

1

0

$0 \quad 100 \quad 200 \quad 300 \quad 400 \quad 500 \quad 600 \quad 700 \quad 800 \quad 900 \quad 1{,}000$

n

abstra

$6.43 \cdot 10^{-9} \cdot x^3 + 1.42 \cdot 10^{-6} \cdot$

close-abs

$6.57 \cdot 10^{-9} \cdot x^3 + 5.75 \cdot 10^{-7} \cdot$

pose-build-a

$-1.45 \cdot 10^{-10} \cdot x^3 + 8.54 \cdot 10^{-7} \cdot$

fast-rew

$-1.45 \cdot 10^{-10} \cdot x^3 + 8.54 \cdot 10^{-7} \cdot$

refin

$1.83 \cdot 10^{-9} \cdot x^2 + 8.87$
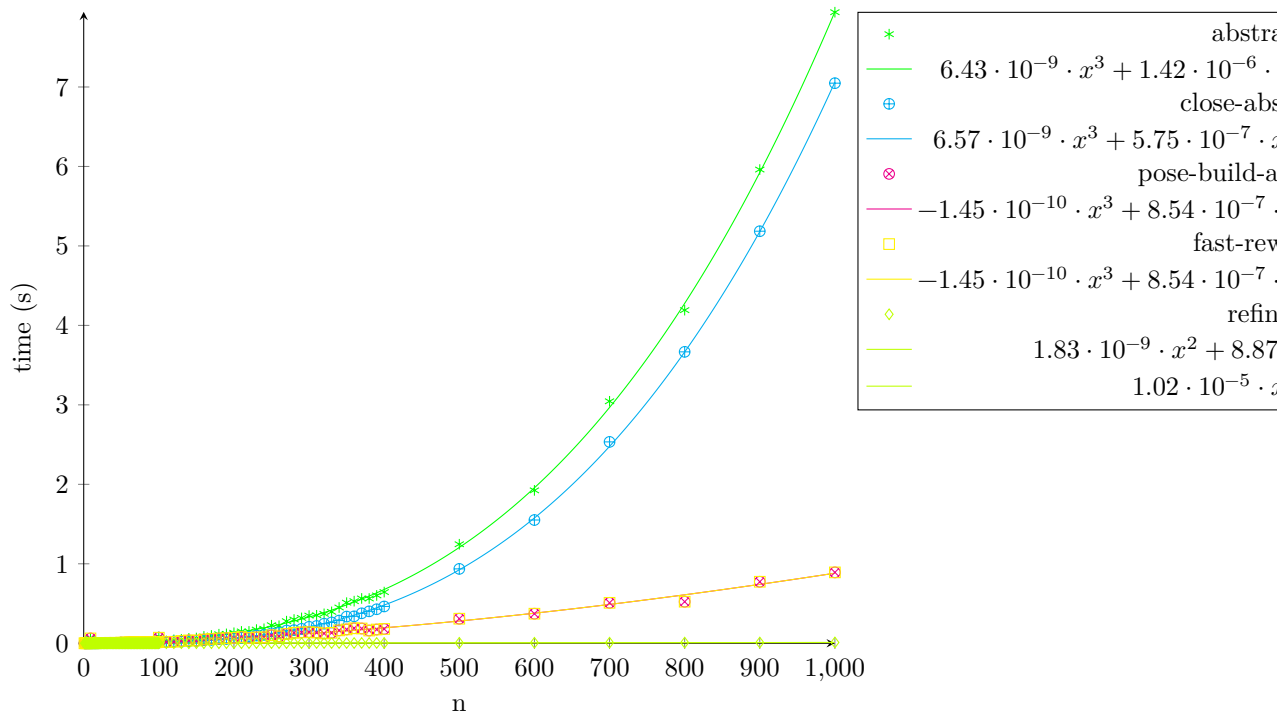
$1.02 \cdot 10^{-5} \cdot$

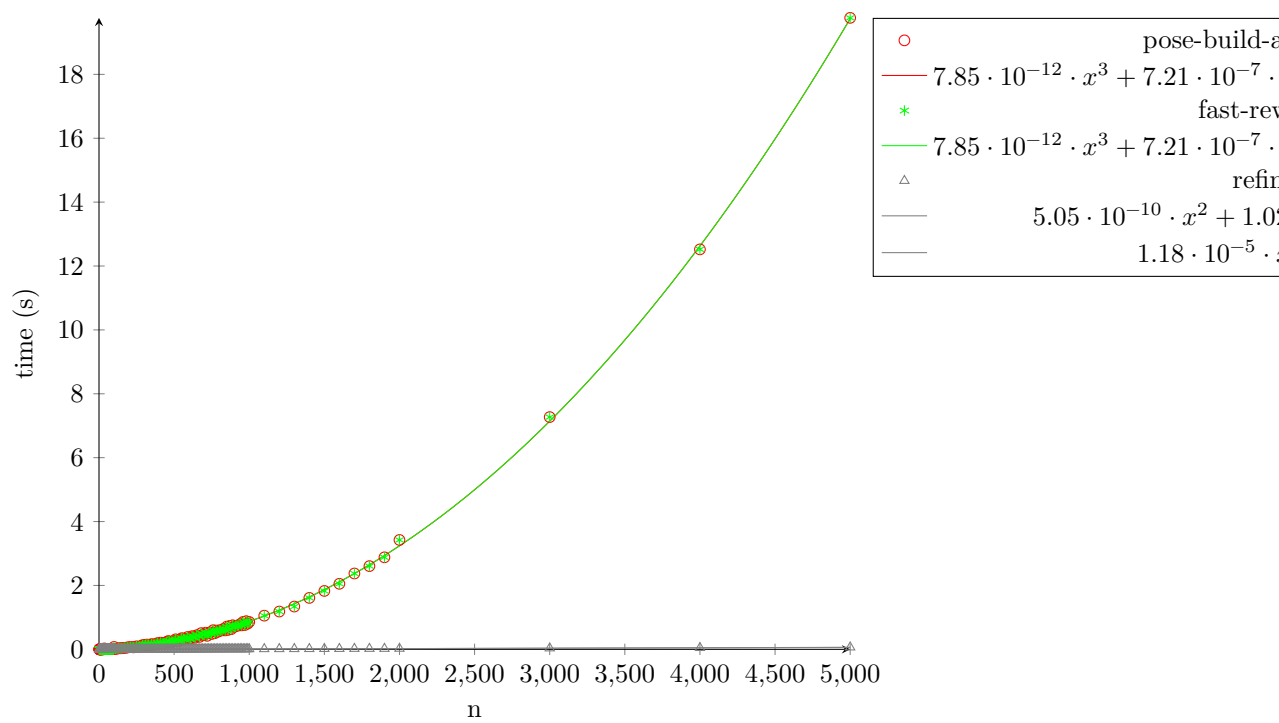Figure 11: timing-rewrite-repeated-app-fast-rewrite

11

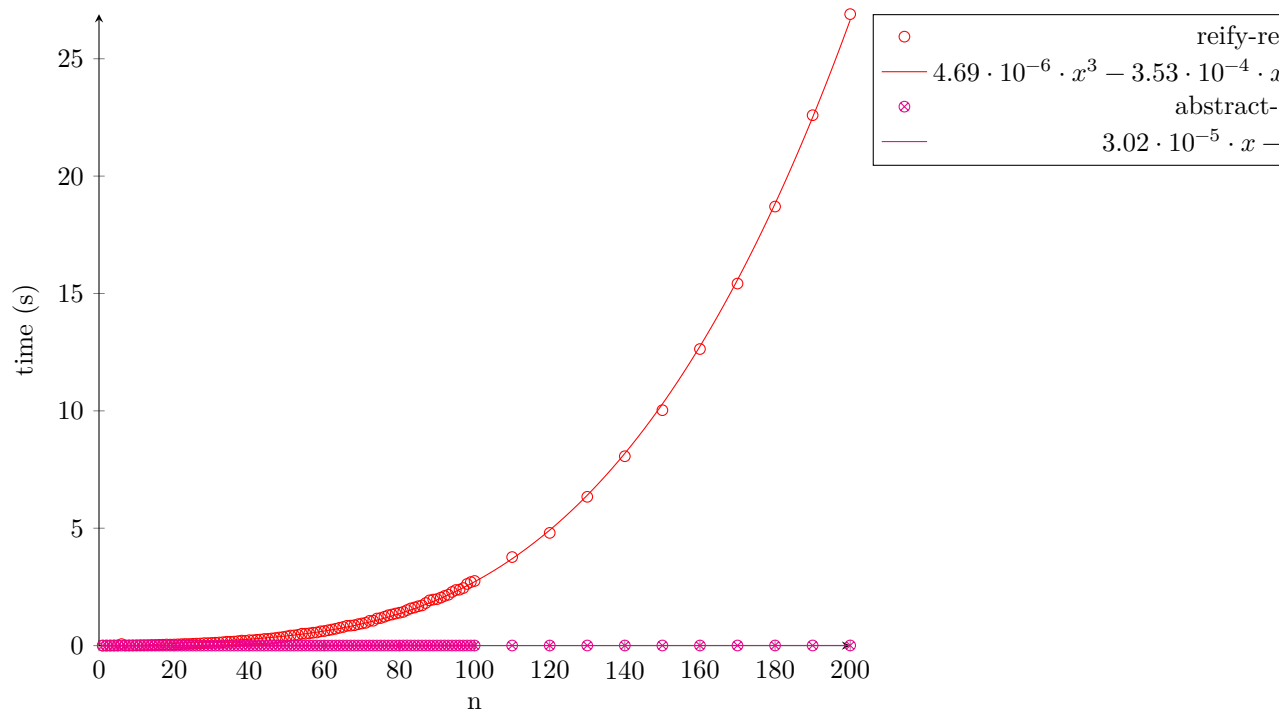Figure 12: timing-rewrite-repeated-app-fast-rewrite-no-abstract

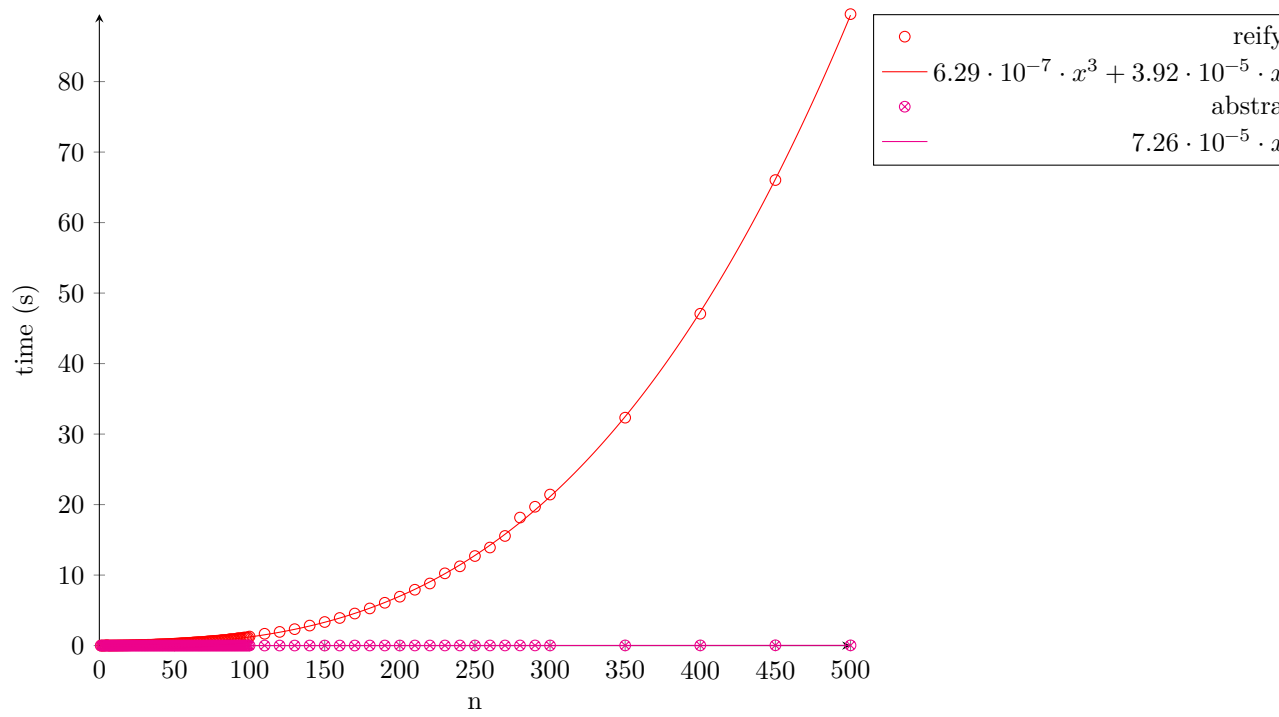Figure 13: timing-typeclass-reification-let-in-HOAS

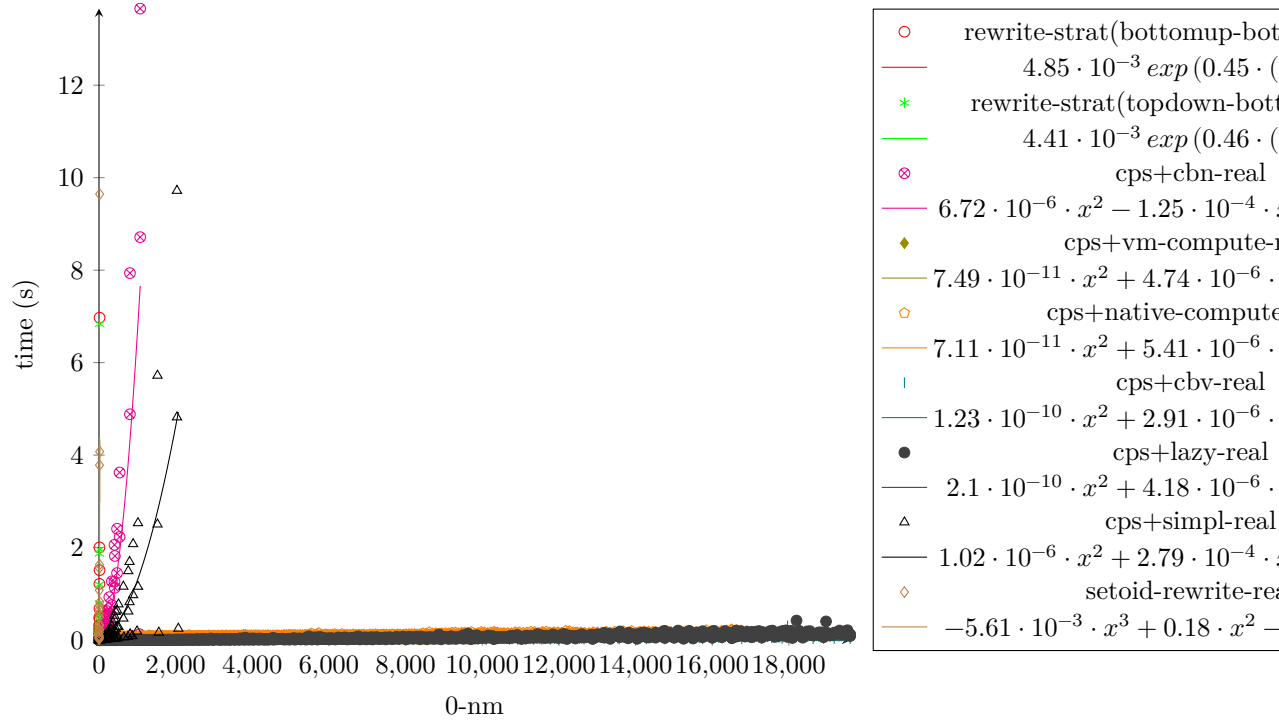Figure 14: timing-typeclass-reification-let-in-PHOAS

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

Legend (partial, cut off on right):

- ○ rewrite-strat(bottomup-bot...
- $4.85 \cdot 10^{-3} \, exp\,(0.45 \cdot ($
- ∗ rewrite-strat(topdown-bott...
- $4.41 \cdot 10^{-3} \, exp\,(0.46 \cdot ($
- ⊗ cps+cbn-real
- $6.72 \cdot 10^{-6} \cdot x^2 - 1.25 \cdot 10^{-4} \cdot$
- ◆ cps+vm-compute-...
- $7.49 \cdot 10^{-11} \cdot x^2 + 4.74 \cdot 10^{-6} \cdot$
- ⬠ cps+native-compute...
- $7.11 \cdot 10^{-11} \cdot x^2 + 5.41 \cdot 10^{-6} \cdot$
- ▏ cps+cbv-real
- $1.23 \cdot 10^{-10} \cdot x^2 + 2.91 \cdot 10^{-6} \cdot$
- ● cps+lazy-real
- $2.1 \cdot 10^{-10} \cdot x^2 + 4.18 \cdot 10^{-6} \cdot$
- △ cps+simpl-real
- $1.02 \cdot 10^{-6} \cdot x^2 + 2.79 \cdot 10^{-4} \cdot$
- ◇ setoid-rewrite-re...
- $-5.61 \cdot 10^{-3} \cdot x^3 + 0.18 \cdot x^2 -$

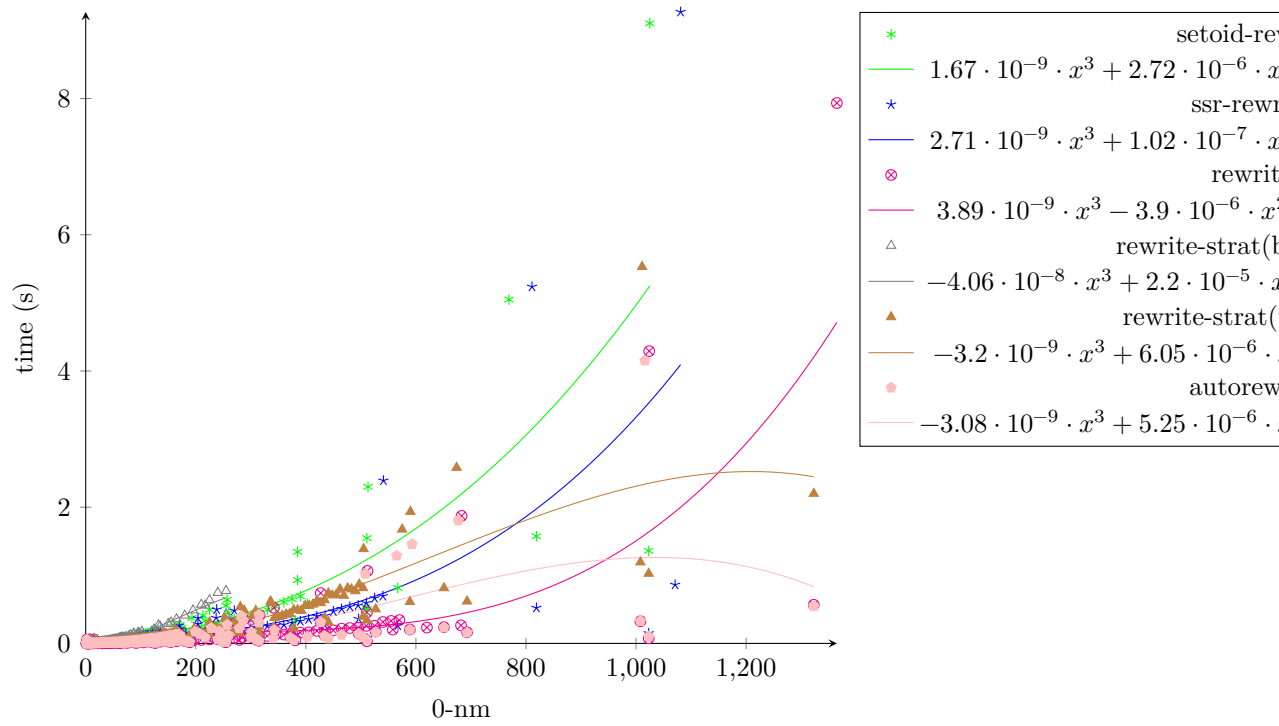Axes: x-axis "0-nm", y-axis "time (s)"

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
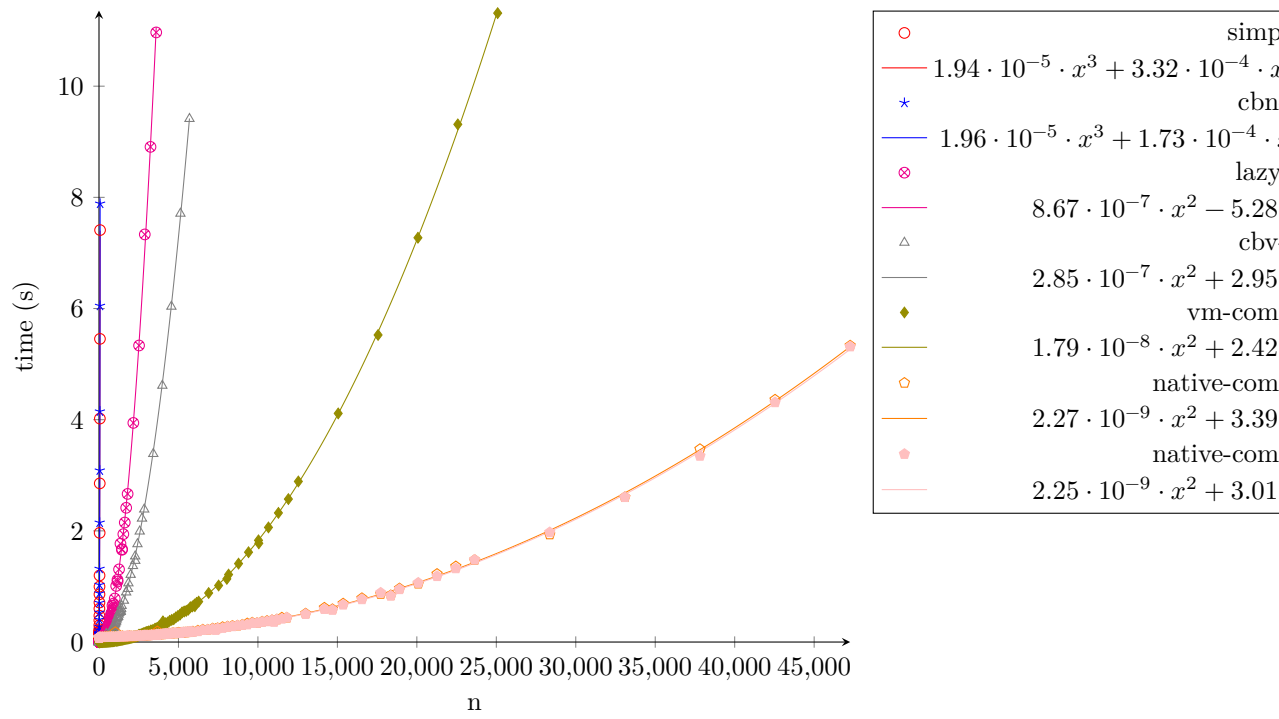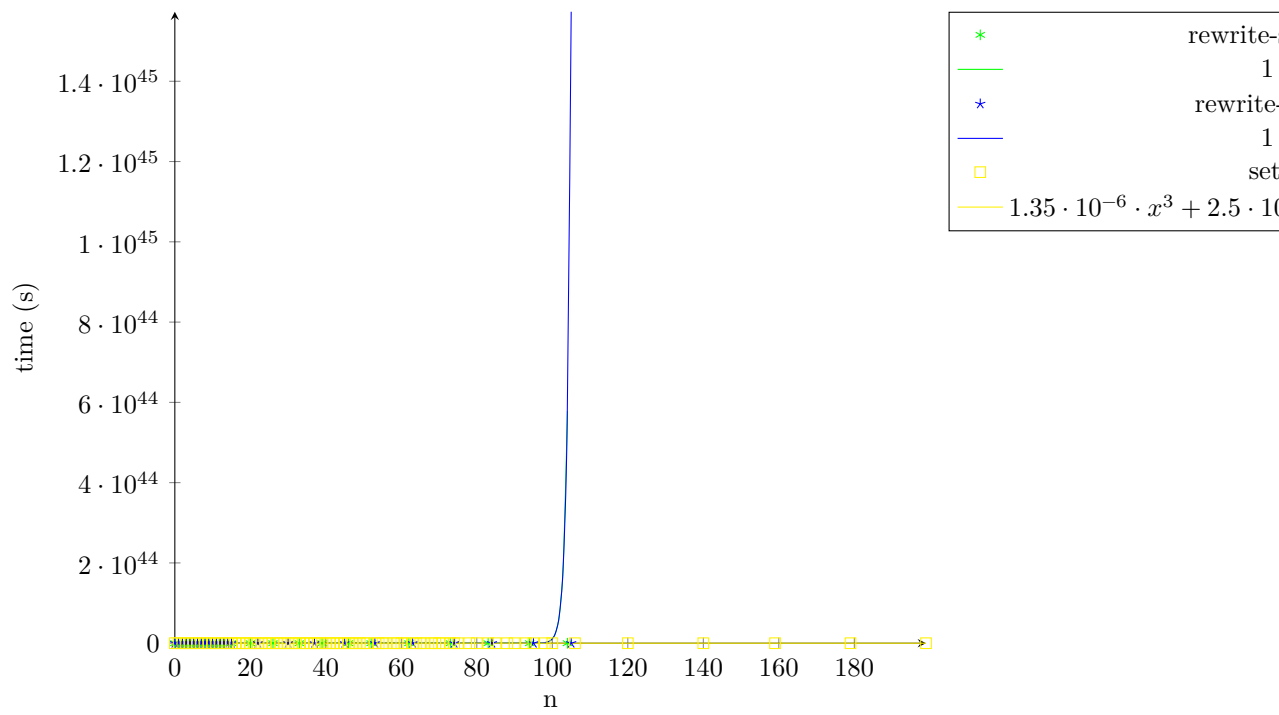
Figure 17: timing-sieve-of-eratosthenes

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