

Addendum 285: The Integer Ten

$C = 10 \alpha^{-1}/(1 + \mu_1 \alpha^2)$: pinned, simplified,
candidates named, underived (OI-282-1 audit)

TOE Corpus

2026-06-10

Skill: gap-closure v1.1 — **Outcome:** Case C (named missing theory; one simplification; candidates enumerated, none promoted) — **Addresses:** OI-282-1 (kept open, final form) — **Verifier:** verify_P285.py — all PASS

Abstract

A282 reduced the mass-formula's free content to the integer 10 and the correspondence postulate. This audit extracts what can be extracted without new theory. *Simplification:* P03's constant collapses to

$$C = \frac{10 \mu_0^3}{\mu_0^2 + \mu_1} = \frac{10 \alpha^{-1}}{1 + \mu_1 \alpha^2},$$

so the correspondence postulate reads, in its cleanest form: *geometric flow per QED flow equals ten inverse couplings times the hierarchy span, dressed* — $\beta_{\text{geom}}/\beta_{\text{QED}} = 10 \alpha^{-1} L/(1 + \mu_1 \alpha^2)$. *Pinning:* treating the prefactor as a free real a and solving against the measured span gives $a = 10.00006$: the integer is data-pinned at 5.5×10^{-6} — whatever the derivation is, it must produce exactly 10, not approximately. *Candidates*, recorded with their texture and without promotion: (i) $d(d+1)/2 = 10$ for $d = 4$ — the independent components of a metric tensor on B^4 ; the reading “the electron-to-Planck span is gravity's domain, and the correspondence counts one α^{-1} per metric component” has physical texture and no derivation; (ii) $10 = 2 \times 5$, the even prime of the bulk coefficient $16 = 2^4$ times the quintic prime (P12/P13); (iii) $10 = \binom{5}{2}$, pairs from the five-fold convergence. *Requirement:* a closing derivation must produce, from corpus primitives, the full identity $L = \frac{3\pi}{20} \mu_1 (1 + \mu_1 \alpha^2)$ — the integer, the specific moment μ_1 , and the dressing — not merely the numeral. OI-282-1 stands in this final form; nothing here closes it, and saying so is the content.

Proposition 0.1 (Simplification and pinning). $10\mu_0^3/(\mu_0^2 + \mu_1) = 10\mu_0/(1 + \mu_1/\mu_0^2) = 10\alpha^{-1}/(1 + \mu_1\alpha^2)$ *identically* ($\mu_0 = \alpha^{-1}$). *Solving* $\beta_{\text{geom}}/\beta_{\text{QED}} = a \alpha^{-1} L_{\text{meas}}/(1 + \mu_1 \alpha^2)$ *for* a *gives* $a = 10.000055$; *the nearest integers 9 and 11 are excluded at the 10% level while 10 holds at 5.5 ppm* — *the constant is an exact integer or the correspondence is numerology, with nothing in between surviving the precision.*

Remark 0.2 (Why the candidates are recorded and not argued). *Each candidate explains the numeral; none explains the formula. The metric-component reading is the most textured — it gives the 10 a job (counting gravitational degrees of freedom over a span that ends at the Planck mass) — but it predicts nothing else and connects to no corpus operator. Promotion criteria (A245/A180): a candidate earns identification only when it derives the accompanying structure, here the moment μ_1 and the dressing. None does. Case C is the correct grade, and the audit's value is the simplified target: future work aims at one line, $L = \frac{3\pi}{20} \mu_1 (1 + \mu_1 \alpha^2)$, knowing half of it ($3\pi/2$, QED) is already external.*

Verifier. `verify_P285.py`: the simplification at 40 digits; the pinning ($a = 10.000055$, integer-exclusion bounds); the candidate arithmetic $(d(d+1)/2, 2 \times 5, \binom{5}{2})$; the requirement statement. All PASS.