en

Fifteenth International Linguistics Olympiad

Dublin (Ireland), 31 July – 4 August 2017

Individual Contest Solutions

Problem 1. The number system is duodecimal.

- **gwīnìŋ** — 1, **bà** — 2, **tàt** — 3, **nààs** — 4, **tùŋūn** — 5, **tìīmìn** — 6, **tàāmà** — 7, **rwīīt** — 8
- **ʃāā**-$\alpha = 12 - \alpha$ $(1 \le \alpha \le 3)$: **ʃāātàt** — 9, **ʃāābà** — 10, **ʃāāgwīnìŋ** — 11
- **kūrū** — 12
- **bā-kūrū bī**-$\bar{\gamma} = \gamma \cdot 12$ $(2 \le \gamma \le 8)$, **bā-kūrū ʃāā-bī**-$\bar{\gamma} = (12 - \gamma) \cdot 12$ $(1 \le \gamma \le 3)$
  (the tone in the first syllable of γ becomes middle)
- β **ná** $\left\{ \begin{array}{ll} \textbf{gwɛ̄ gwīnìŋ} & (\delta = 1) \\ \textbf{vɛ̀} & \delta\ (2 \le \delta \le 11) \end{array} \right\} = \beta + \delta$ $(\beta = k \cdot 12)$

Answers:

(a)
1. $5^2 + 3 + 4 = 32$
2. $3^4 = 81$
3. $7^2 + 9 + 1 = 59$
4. $9^1 = 9$
5. $8^2 + 2 + 5 = 71$
6. $2^5 = 32$
7. $9^2 + 4 + 3 = 88$
8. $4^3 = 64$
9. $16 + 21 = 18 + 2 + 17$

(b) **bākūrū bītāt** — 36, **ʃāāgwīnìŋ** — 11, **kūrū** — 12.

A. $108 - 3 - 13 = 92$

B. $49 - 14 - 15 = 20$

(c) 6 — **tìīmìn**, 22 — **kūrū ná vɛ̀ ʃāābà**, 97 — **bākūrū bīrwīīt ná gwɛ̄ gwīnìŋ**, 120 — **bākūrū ʃāābībā**.