

UNIVERSITY OF LONDON

577 0090

MA Examination
for Internal Students

PHILOSOPHY

Philosophy of Mathematics

Friday 22 May 2009 : 10.00 – 1.00 pm

Candidates should answer **THREE** questions. Avoid overlap in your answers.

© University of London 2009

UL09/975

Page 1 of 3

1. Must a geometrical theory be a theory about the physical world?
2. “Geometrical thinking does not use abstract general ideas; it uses particular sensory ideas to represent general classes of things.” Discuss this view.
3. What role, if any, can spatial intuition play in the acquisition of geometrical knowledge?
4. Is our knowledge of a numerical equation (such as ‘ $2 + 7 = 9$ ’) an inductive generalization from sensory experience?
5. **EITHER**
 - (a) ‘Number (*arithmos*) is a finite plurality (multitude, multiplicity) composed of units, where a unit is whatever counts as one thing in the number under consideration. Thus Trigger, Champion, and Red Rum constitute a number of horses, and each unit in this number is a horse’ (Mayberry). Assess this view.

OR

 - (b) What are the pros and cons of the view that a cardinal number n is the class of all concepts with exactly n instances?
6. Are numerical equations in pure arithmetic statements about numerals?
7. **EITHER**
 - (a) What was Frege’s strategy for establishing that arithmetic is part of logic? What difficulties did Frege come up against and how serious were they?

OR

 - (b) Can logicism be made plausible by adopting the doctrine of logical types?
8. Explain and assess the view that mathematical entities are brought into existence by acts of mental construction.
9. Are there good reasons for holding that, while there are finite sets and sequences, no set or sequence is infinite?
10. What was Hilbert’s Programme? Was it reasonable at the time it was proposed?

11. Assess Carnap's claim that external existence questions are pseudo questions with respect to the case of mathematics.
12. 'We should believe all and only those mathematical theories that have an indispensable role in predictively successful empirical science.' Discuss.

END OF PAPER

