Mark McEvoy's Philosopher of Mathematics Review Grid

Philosopher	Objects of Math	Math Truths Necessary?	The Infinite	Math Knowledge	Is Our Knowledge of Mathematics Innate?
Plato	Platonic Forms	Yes (forms don't change so truths about them cannot change either.	No problem: The Platonic realm can accommodate an infinite number of entities.	A priori	Yes (that's how math knowledge is a priori
Aristotle	Quantities: Forms existing--potentially -- in physical objects	Yes. See p.1 of reading	Exists only potentially (no matter how big a number you have, you can always add one to it.	A priori. Known by proofs and the intellect. But there is a role for the senses: We get our math concepts by abstracting from our ideas of sensible objects	No. Use of our senses is required for us to begin to form our math concepts.
Descartes	Unclear. He could be a platonist or a Divine realist or a divine conceptualist.	No. He sees them as eternal truths, created by God. As God could have made different mathematical truths, the truths there are are not necessary: though we cannot help but think that they are necessary.	I don't know where he says anything about this, but his position is at least consistent with accepting an actual infinite.	A priori. Our mathematical knowledge is a matter of making clear and distinct our innate ideas	Yes. He thinks our senses don't give us ideas of exact geometric objects. Since we have such ideas, they must be implanted in us from birth.

Philosopher	Objects of Math	Math Truths Necessary?	The Infinite	Math Knowledge	Is Our Knowledge of Mathematics Innate?
Leibniz	No object of mathematics. Mathematical truths are logical truths. They have no specific objects of their own.	Yes. They are logical truths, ultimately based on the law of non-contradiction. To deny them would be self-contradictory.	Syncategorematic infinite. Matter and space is actually infinitely divided, but there is no infinite cardinal number that measures the amount of space or matter. Similarly, the natural numbers form an infinite sequence, but there is no infinite cardinal number.	A priori. It must be so, since mathematical truths are necessary, and the senses can only tell us what is true, not what must be true.	Potentially innate; not conscious. We must work to bring our innate ideas into our conscious minds.
Locke	Our ideas (5.24). This makes Locke a conceptualist.	Yes (132: 5.28)	We have a negative idea of the infinite, but we lack any positive idea. 'Negative idea' seems similar to Aristotle's potential infinite.	A priori: it is entirely a matter of examining our ideas and the relations between them.	No ideas are innate. The tabula rasa.
Berkeley	There are only mathematical names. There are no platonic entities, nor any general abstract ideas. (Nominalism)	???	Rejects completely any claim that the infinite even makes sense. (Finitism)	Not clear. Mathematical knowledge is a matter of examining our ideas, so it could be a priori.	No ideas are innate, as with Locke.

Philosopher	Objects of Math	Math Truths Necessary?	The Infinite	Math Knowledge	Is Our Knowledge of Mathematics Innate?
Hume	There are no mathematical objects. Mathematical truths are relations of ideas.	Yes, because their denial involves a contradiction.	Rejects infinite divisibility of both space and time.	A priori, definitional	No ideas are innate.
Kant	Geometry is the study of concepts that we construct from our intuition of space. Arithmetic is the study of concepts we create from our intuition of time. (Constructivism)	Yes, but only because we are incapable of having experiences which are not filtered by our intuitions of space and time.	Potential infinite (See A432/B460)	Synthetic a priori. Factual truths (as opposed to mere definitional truths) that are known a priori.	Our intuitions of space and time are innate, and these form the basis of all mathematical knowledge
Mill	Geometry is about limit concepts, which do not exist, but are approximated y physical objects. Arithmetic is about aggregates of physical objects.	No, further experience could disconfirm mathematical assertions.	???	A posteriori, since all knowledge is based on sensory observation	No
Frege's Logicism	Platonic entities	Yes	Accepts the actual infinite	Arithmetic is analytic a priori, based on logic. Geometry is synthetic a priori.	No. It is based on our knowledge of logic.

Philosopher	Objects of Math	Math Truths Necessary?	The Infinite	Math Knowledge	Is Our Knowledge of Mathematics Innate?
Russell's Logicism	Sets, construed according to our logical axioms	Yes	Assumes an actual infinity of non-set-theoretic elements as an axiom	Analytic a priori, based on logic	No. It is based on our knowledge of logic.
Brouwer's Intuitionism	Mental constructions	Yes, but only because disproving mathematical truths is unthinkable	Accepts only a potential infinite	Synthetic a priori	No, but constructed out of our synthetic a priori intuition of time
Hilbert's Formalism	Finite mathematics is about stroke symbol sequences Infinite mathematics is about nothing	Yes, since all mathematical truths are provable	Accepts the infinite as an ideal, meaningless element, useful for deriving further finitary mathematical results	Proofs are a priori. Elementary truths are known by (a priori? a posteriori?) intuition.	No