Philosophy 405: Knowledge, Truth and Mathematics Hamilton College
Russell Marcus rmarcus1@hamilton.edu

Reading Guide #4: Modern Rationalism
Descartes, from *Meditations on First Philosophy*
Descartes, "Geometric Presentation..."
Leibniz, "Meditations on Knowledge, Truth, and Ideas"
Locke, from *Essay Concerning Human Understanding*
Leibniz, from *New Essays Concerning Human Understanding*

Descartes, from 'Third Meditation'

1. What general rule does Descartes accept as a criterion of certainty? How does he justify this rule?
2. What mistake did Descartes make regarding ideas arising from sense experience? How did he realize this mistake?
3. How does the doubtfulness of mathematical claims differ from that of claims based on sense experience?
4. What made Descartes doubt the truth of mathematical claims? What particulars does he distinctly perceive?

Descartes,'Fifth Meditation'

5. What properties of "continuous quantity" does Descartes distinctly imagine? What particulars does he distinctly perceive?
6. "What I believe must be considered above all here is the fact that I find within me countless ideas of certain things that, even if perhaps they do not exist anywhere outside me, still cannot be said to be nothing" (AT64). Explain.
7. How does Descartes argue that mathematical objects, like the triangle, exist objectively (immutably)?
8. How does Descartes argue that mathematical knowledge does not arise from sense experience?
9. How does Descartes's argument for the truth of mathematics lead to an argument for the existence of God? Explain the parallels between the two arguments.
10. Is it possible to doubt a clear and distinct idea? Explain.
11. Does the dream hypothesis cast doubt on Descartes's certainty of mathematics?

Descartes, "Geometric Presentation"

12. What do the first two postulates postulate?
13. What kinds of propositions does Descartes introduce in the third postulate?
14. How does Descartes defend his certainty of mathematics in Postulate Four?

Leibniz, 'Meditations on Knowledge, Truth, and Ideas'

15. How is clear knowledge different from obscure knowledge. Provide examples. Is obscure knowledge really knowledge?
16. How is distinct knowledge different from confused knowledge. Provide examples.
17. What is a primitive notion? How does it differ from something of which we have only a nominal definition?
18. How is adequate knowledge different from inadequate knowledge? What kind of human knowledge might be adequate?
19. How does Leibniz characterize symbolic knowledge? How does it differ from intuitive knowledge? Provide examples.
20. Explain Leibniz's criticism of the ontological argument. How does it show that symbolic knowledge may be misleading?
21. What are real definitions? How do we determine a priori that something is possible?
22. What is a perfect analysis of our ideas (notions)? Do we have perfect analyses of most ideas? Explain.
23. How does Leibniz criticize Descartes's criterion of clear and distinct ideas?
24. How do mathematicians protect themselves against error?
25. How do our ideas differ from those of God?
26. How are our perceptions of colors composite?

Locke, *Essay*, Book I, Chapter 2

1. What is Locke's strategy for denying the existence of innate ideas?
2. What does Locke take to be the most important argument for innate ideas? How, according to Locke, is that argument invalid? How is it unsound?
3. "It [seems] to me near a contradiction to say, that there are truths imprinted on the soul, which it perceives or understands not..." (§5). Explain the undesirable conclusions Locke mentions.
4. How do innate capacities differ from innate maxims? Does Locke accept an innate capacity?
5. What is reason? To what contradiction does the supposition that people use reason to discover innate ideas lead?
6. How does Locke show that our use of reason precedes our knowledge of simple, logical maxims?
7. Does our use of reason and our assent to simple logical maxims come at the same time? What would their concomitance show?
8. Describe Locke's account of our knowledge of general ideas.
9. How does Locke argue that our earliest ideas, those that precede language, are not innate?
10. When do we learn simple arithmetical truths?
11. "[N]o proposition can be innate unless the ideas about which it is [are] innate..." (§18). Explain.
12. Do we learn general or particular propositions first? What does this show?
13. Why doesn't our immediate assent to a proposition show that proposition to be innate?
14. How does Locke dismiss the independence of innate knowledge as implicit knowledge?
15. How, according to Locke, will mathematicians be reluctant to admit innate ideas?
16. "For words being but empty sounds, any further than they are signs of our ideas, we cannot but assent to them as they correspond to those ideas we have, but no further than that" (§23). Explain.
17. Why should innate ideas be our first ideas?
18. How does Locke's conclusion regarding the two simple, logical maxims he considers relate to his general conclusion against innate ideas?

Leibniz, from *New Essays*

1. How does Leibniz argue that the senses are insufficient to provide all of our actual knowledge?
2. Can we have sensory verification of necessary truths? Explain.
3. How are the beliefs of animals and empirics different from human beliefs?
4. According to Leibniz, what kinds of ideas are innate?
5. Explain Leibniz's Hercules-in-the-marble analogy.
6. How does memory mitigate a concern about innate ideas?
7. In what way are mathematical truths innate? How do we learn them?
8. What are primary innate ideas? Are these the only innate ideas?
9. What problem does Leibniz describe with Plato's doctrine of recollection?
10. "Why could one not have in the soul something which one had never used?" (79). Explain.
11. How does Leibniz argue that innateness is not merely a capacity to receive necessary truths?
12. Distinguish the temporal order of ideas from their order of justification.
13. How does Leibniz distinguish among propositions like 'two bodies can not be in the same place' and 'a square is not a circle'?
14. Is the greater obviousness of particular claims (than general ones) an argument against innate ideas? Explain.
15. Can we learn innate ideas? Explain. Why might someone think that we can not?
16. Are there innate thoughts?
17. Are numbers more or less distinguishable than extensions?
18. Distinguish potential (syncategorematic) infinity from actual infinity.
19. How does the idea of infinity rest on an idea of likeness?
20. What are axioms? What are the advantages of taking more or fewer axioms?
21. Why is it not always safe to deny one thing of another?
22. Why isn't 'two bodies can not be in the same place' an axiom?
23. What are the advantages of algebraic variables? How do these advantages exemplify Locke's methods?
24. Provide an example of a primary truth, or identity.
25. Is '2 + 2 = 4' a primary truth? Explain.
26. Do proofs require axioms? Explain.