Chapter 1 – The basic tools of reasoning
Answers to select "Getting familiar with…" exercises.

Getting familiar with... different types of claims.

1. Question
3. Command
5. Emotive Iteration
7. Emotive Iteration
9. Question (This one depends on context. Literally, it is a question. But, depending on who is saying it—and the tone with which it is said—it could be a command.)
11. Prescriptive Claim
13. Descriptive Claim
15. Question (If asked rhetorically, in an exasperated tone, this is an emotive iteration.)
17. Prescriptive Claim
19. Question

Getting familiar with... operators.

a.
1. Conditional
3. Conjunction
5. Simple
7. Bi-conditional
9. Disjunction
11. Conditional
13. Disjunction
15. Negation

b.
1. Conditional
3. Bi-conditional
5. Conjunction

Getting familiar with… Quantifiers.

1. Some
3. None
5. Some
7. All
9. Some
11. All
13. None
15. All
17. Some
19. All

Getting familiar with… evidence.

a.
1. Given the earth's speed and the time it takes to complete one rotation around the sun, then assuming the sun is in the center of the orbit, we can calculate the distance between the earth and the sun (Indirect). Established scientists like Neil DeGrasse Tyson say that the Sun is about 92,960,000 miles from Earth (Indirect).

3. The people who program calculators believe that 2+2=4 (Indirect). I understand the relationship between 2 and 4 such that it is clear to me that 2 + 2 = 4 (direct).

5. The only photo from the moon has shadows in two different directions, which wouldn't happen if the sun were the light source illuminating the picture; it must have been taken in a studio (Indirect). Scientists working for NASA have testified that all moon landing attempts were failures (Indirect).

7. I can tell the difference between different colors, and these words are black (Direct). Books are usually printed with black letters on white pages (Indirect).

9. I remember from Chemistry class that carbon atoms are larger than hydrogen atoms (Indirect). A chemist friend of mine says that hydrogen-1 atoms have a smaller atomic mass than carbon-12 atoms (Indirect).

11. I have suffered quite a bit (Direct). I have heard about the suffering of many people all over the world (Indirect).

13. Textual scholars reject that method as unreliable (Indirect). There are clear examples where that calculation leads to the wrong conclusion about the author of a text (Direct—counterexamples demonstrate directly that the method is unreliable).

15. I look older than my siblings, and people who look older usually are older (Indirect). My and my siblings' birth certificates tell me that I am older than they (Indirect).

17. Simpson had more motive and opportunity than anyone (Indirect). The murder weapon, style of killing, and time of death indicate that Simpson is likely the killer (Indirect).

19. Humans and chimpanzees are similar in genetic make-up (Indirect). Humans have physical features similar to chimpanzees (called homologies) (Indirect).

b.
1. Sense experience (However, this phrase is sometimes used metaphorically to mean "angry," which would be an emotional experience.)

3. Sense experience

5. Sense experience

7. Sense experience

9. Emotional experience

11. At first, it is a sense experience, then, once processed, it becomes an emotional response as you remember what the smell reminds you of.

13. Sense experience. If I can feel such things at all, I physically feel my hand's position, though not through one of my primary five senses. This is most likely a combination of those senses.

15. Sense experience, most of the time. I can see and count three objects and then five objects and conclude that they represent 8 objects. And I have been taught and remember that 3 of something and 5 of something are undoubtedly eight somethings. But actually "understanding" that it is true may be a different sort of experience altogether.

17. Sense experience. I feel the pressure, temperature, moisture, etc. of the air change and I remember that those things are correlated with rain in the past.

19. Both sense and emotional experience. I may see something that inspires a memory of my deceased dog. The dog does not exist currently, yet I vividly remember its looks, actions, and the sound of its bark to be remarkably similar to what I just experienced. But that memory is vivid because it has many emotional features. I cannot remember my dog without feeling something about it.

Getting familiar with… arguments.

1. Argument. Premises: The rug is stained. The rug was not stained last night. The dog is the only thing that has been in the room since last night. Conclusion: The dog stained the rug.

3. List

5. Narrative that includes information. We learn not only the order of events but also details about the events.

7. Argument. Premises: She 21 years old (legal driving age). She has no history of accident. She does not drink, which means she is not at risk for accidents due to alcohol. Conclusion: She is trustworthy to drive your vehicle.

9. Narrative

11. Narrative

13. Informational statement that contains a narrative. (They key is that the narrative doesn't tell us any details of the story; we don't know any details of the childhood home, the family lineage, etc. This suggests that it just meant to inform us about what sort of story he told.)

15. Narrative that contains an argument. Premises: [The victim was shot – enthymemic premise.] The bellhop had the gun that killed the victim. The bellhop is the only person with motive. There was no other evidence about who killed the victim. Conclusion: The bellhop killed the victim.

17. List that informs (This list is given in response to a question. The list serves as an answer to the question, so it is an informational statement.)

19. Argument. Premises: Edwin Hubble discovered evidence of a Big Bang event. Arno Penzias and Robert discovered more evidence of a Big Bang event. Conclusion: You should believe the Big Bang theory.

Getting familiar with… identifying arguments.

1. **Premises**: The project has been unsuccessful. There is no hope that it will be successful. The money we are spending on it could be used better somewhere else. If these things are true, you should cut the program. **Conclusion**: Therefore, you should cut the program.

3. **Premises**: The first three experiments showed no positive results. The fourth experiment showed only slightly positive results. Experiments with drugs that do not yield overwhelmingly positive results suggests that those drugs are not effective. **Conclusion**: We must conclude that the drug is not effective for treating that illness.

5. **Premises**: Candidate Williams is caustic and mean. She is lazy and irresponsible. And she has no experience managing people. You should not vote for people with these qualities. **Conclusion**: You should not vote for candidate Williams. (No indicating words.)

7. **Premises**: There are many people who were concerned that Descartes had become a Protestant sympathizer. He threatened the standard educational practices in the Jesuit universities. Anyone who raises such concerns could be a target for assassination. **Conclusion**: Therefore, it isn't unreasonable to believe Descartes was poisoned.

9. **Premises**: All psychologists, poets, and novelists who have studied the intelligence of women recognize today that women represent the most inferior forms of human evolution and that they are closer to children and savages than to an adult, civilized man. Women excel in fickleness, inconstancy, absence of thought and logic, and incapacity to reason. [People who exhibit these traits are inferior to those who do not. Men do not excel in fickleness, inconstancy, absence of thought and logic, and incapacity to reason—enthymemic premises.] **Conclusion**: Women are inferior to men.