

SECTION I  
Time—35 minutes  
23 Questions

Directions: Each group of questions in this section is based on a set of conditions. In answering some of the questions, it may be useful to draw a rough diagram. Choose the response that most accurately and completely answers each question and blacken the corresponding space on your answer sheet.

Questions 1–6

Anna, Childress, Doyle, Elbert, Xavier, and York are students in a philosophy class. They must each reserve one of six individual tutoring sessions with the instructor. Each session begins when the prior sessions ends. Exactly one student attends each session, and no student attends more than one session.

Anna's session is later than Childress' session.

Elbert's session is either first or last.

York's session begins immediately after Xavier's session ends.

Either Childress or Anna must be scheduled for the third session.

1. Which of the following is an acceptable schedule of students to tutoring sessions from first to sixth?
  - (A) Elbert, Doyle, Childress, York, Xavier, Anna
  - (B) Doyle, Childress, Anna, Xavier, York, Elbert
  - (C) Elbert, Anna, Childress, Doyle, Xavier, York
  - (D) Xavier, York, Doyle, Childress, Anna, Elbert
  - (E) Doyle, Childress, Anna, Elbert, Xavier, York
2. Which of the following could be true?
  - (A) Anna has the second session.
  - (B) Childress has the sixth session.
  - (C) Xavier has the second session.
  - (D) York has the fourth session.
  - (E) Childress has the second session.
3. If York has the second session, which of the following must be true?
  - (A) Anna has the fourth session.
  - (B) Doyle has the fifth session.
  - (C) Anna has the third session.
  - (D) Elbert has the first session.
  - (E) Childress has the third session.
4. If Doyle has the first session, which of the following must be true?
  - (A) Anna has the fourth session.
  - (B) Xavier has the fifth session.
  - (C) Childress has the second session.
  - (D) York has the second session.
  - (E) York has the fourth session.
5. If Doyle does not have a session earlier than fifth, which of the following could be true?
  - (A) Anna has the fifth session.
  - (B) Childress has the first session.
  - (C) York has the second session.
  - (D) York has the fourth session.
  - (E) Xavier has the fifth session.
6. Which of the following students CANNOT be scheduled for the fifth session?
  - (A) Anna
  - (B) Childress
  - (C) Doyle
  - (D) Xavier
  - (E) York

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**Tutoring order**

This game is a straightforward simple line with a typical setup and common rules. The setup makes it clear that one tutoring session must end before another starts, and that each student attends one tutoring session and does so alone. This requires six dashes to keep track of the order. (Figure 1a) Now, review the rules. When you are more experienced, you will review all the rules before diagramming any of them; but for now, to keep things simple, we shall deal with the rules in the order they appear.

Rule 1 says that A is later than C. (Figure 1b) This allows you to make a conclusion: Since C must be before A, A cannot be first, nor can C be sixth. Note this conclusion under the first and sixth dashes in figure 1b. Rule 2 is easy to diagram; E can only be first or sixth. Instead of putting a negative E under dashes two through five, it is more efficient to put an (E) under dashes one and six. The parentheses tell us that E is conditional, that it may be in one space or the other. (Figure 1c) Next, Rule 3 creates a block where X must be immediately before Y. This is diagrammed as X Y. Whenever the rules provide this kind of block, eliminate all the places where X can't be, and all those where Y can't be. Since X must be before Y, Y cannot be first and X cannot be sixth. (Figure 1d) Finally, Rule 4 is a little more complex. It states that either C or A must be third. To diagram this, place a C/A on the third space. (Figure 1e) The slash indicates that either C or A must be on this space. When we combine Rule 1 and Rule 3, we can make an important conclusion. Since C is before A and either C or A is third, C must be first, second, or third, and it cannot be fourth, fifth, or sixth. Also, A must be third, fourth, fifth, or sixth. (Figure 1e) It is also possible to use two lines, one with A third, and the other with C third. (Figure 1f)

Although we now know a lot about the diagram, there is even more we can conclude. Since either C or A is third, neither X nor Y can be third. This means that X cannot be second (because Y cannot be third) and that Y cannot be fourth (because X cannot be third). After graphing these conclusions in figure 1e, you now have ample information to attack the questions.



Fig. 1a

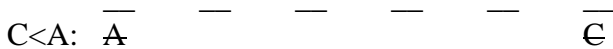


Fig. 1b



Fig. 1c



Fig. 1d

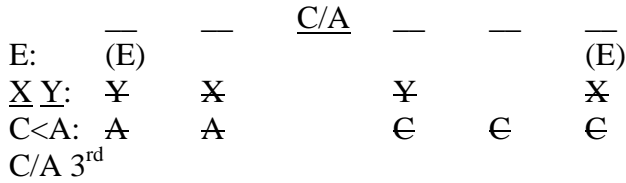


Fig. 1e

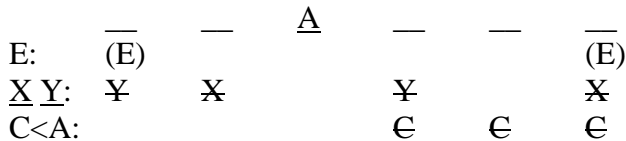
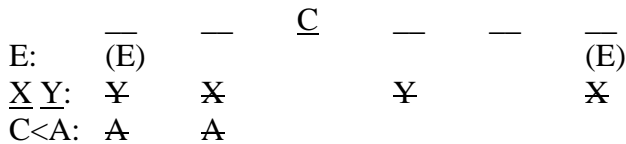


Fig. 1f

1. (B) – For the first question in the set, you can normally use each rule to eliminate one answer choice. Start with the first rule and determine which answer choice violates the rule. Then do the same for each subsequent rule.
  - (A) Rule 3 states that X must be immediately before Y, while this choice shows Y before X.
  - (B) \* This choice is correct because it does not violate any rules.
  - (C) This choice violates Rule 1 because it has A before C.
  - (D) This choice violates Rule 4 because it has D in the third space.
  - (E) This choice violates Rule 2 because E is not first or sixth.
  
2. (E) – This question does not add any new information. As such, you can answer it using the initial diagram. There is no need to do additional work.
  - (A) A cannot be second.
  - (B) C cannot be sixth.

- (C) X cannot be second.
- (D) Y cannot be fourth.
- (E) \* C can be second, as long as A is third.

3. (E) – Since this question adds new information, create a simple diagram next to the question and graph the new information. (Figure 2) Since Y is second, X must be first. Since X is first, E must be sixth. Since either C or A must be third and C must be before A, C must be third. A and D are in the fourth and fifth spaces, in either order.
- (A) Either A or D can have the fourth session.
  - (B) Either A or D can have the fourth session.
  - (C) C must have the third session.
  - (D) E must have the sixth session.
  - (E) \* Yes. C is forced to be third because X and Y are first and second, respectively.

X    Y    C    —    —    E

Fig. 2

4. (C) – Again, create a simple diagram with this new information about D being first. (Figure 3) Since D is first, E must be sixth. The only remaining spaces that can accommodate the block of X and Y are the fourth and fifth spaces. This means that A must be third and C must be second.
- (A) A must be third.
  - (B) X must be fourth.
  - (C) \* C must be second.
  - (D) Y must be fifth.
  - (E) Y must be fifth.

D    C    A    X    Y    E

Fig. 3

5. (C) – This question uses a slightly different approach. You must figure out what is possible when D is fifth, and what is possible when D is sixth. When D is sixth, E must be first. (Figure 4a) This leaves the fourth and fifth spaces open for the block of X and Y. A must then be third and C second. If D is fifth, then the only way to accommodate X and Y is to place them first and second. (Figure 4b) This forces E to be sixth. C will be third and A will be fourth.
- (A) A is either third or fourth when D is limited to the last two spaces.
  - (B) C is either second or third.

- (C) \* Yes, Y can be second.
- (D) Y cannot be fourth.
- (E) X can be first or fourth, but not fifth.

E      C      A      X      Y      D

Fig. 4a

X      Y      C      A      D      E

Fig. 4b

6. (B) – This question does not add new information, so consult the initial diagram.
- (A) A can be third, fourth, fifth, or sixth.
  - (B) \* C cannot be fifth. (Figure 1e)
  - (C) D can be fifth, as we learned in question 5.
  - (D) X can be fifth.
  - (E) Y can be fifth.