Question 1:

Context: Exactly six trade representatives negotiate a treaty: Klosnik, Londi, Manley, Neri, Osata, Poirier. There are exactly six chairs evenly spaced around a circular table. The chairs are numbered 1 through 6, with successively numbered chairs next to each other and chair number 1 next to chair number 6. Each chair is occupied by exactly one of the representatives. The following conditions apply: Poirier sits immediately next to Neri. Londi sits immediately next to Manley, Neri, or both. Klosnik does not sit immediately next to Manley. If Osata sits immediately next to Poirier, Osata does not sit immediately next to Manley.

Question: Which one of the following seating arrangements of the six representatives in chairs 1 through 6 would NOT violate the stated conditions?

Options: ["Klosnik, Poirier, Neri, Manley, Osata, Londi", "Klosnik, Londi, Manley, Poirier, Neri, Osata", "Klosnik, Londi, Manley, Osata, Poirier, Neri", "Klosnik, Osata, Poirier, Neri, Londi, Manley", "Klosnik, Neri, Londi, Osata, Manley, Poirier"]

Answer: "Klosnik, Londi, Manley, Poirier, Neri, Osata"

Explanation: Oh good, here?s an acceptability question. Normally we?d just check each rule against the choices and eliminate the choices that violate a rule. However, there?s something we need to notice about this acceptability question. Thanks to the circular design of the table, the first person of each list (in chair 1) is next to the last (in chair 6). For example, we need to realize that, in choice (A), Klosnik sits next to Londi. With that in mind, we can treat this just like any other acceptability question; just grab each rule and cross off any choice that violates that rule. Rule 1 is violated by answer choice (E) which doesn?t have Poirier next to Neri. Rule 2 requires that Londi be next to Manley, Neri, or both. Answer choice (A) has Londi next to Osata and Klosnik (Londi in seat 6 and Klosnik in seat 1) and so can be eliminated. Rule 3 forbids Klosnik to be next to Manley which answer choice (D) tries (Manley in seat 6 wraps around and is next to Klosnik in seat 1). Finally, the conditional Rule 4 is violated by answer choice (C) which has Osata next to both Poirier and Manley. Choice "Klosnik, Londi, Manley, Poirier, Neri, Osata" remains and is the credited response.

Question 2:

Context: Exactly six trade representatives negotiate a treaty: Klosnik, Londi, Manley, Neri, Osata, Poirier. There are exactly six chairs evenly spaced around a circular table. The chairs are numbered 1 through 6, with successively numbered chairs next to each other and chair number 1 next to chair number 6. Each chair is occupied by exactly one of the representatives. The following conditions apply: Poirier sits immediately next to Neri. Londi sits immediately next to Manley, Neri, or both. Klosnik does not sit immediately next to Manley. If Osata sits immediately next to Poirier, Osata does not sit immediately next to Manley.

Question: If Londi sits immediately next to Poirier, which one of the following is a pair of representatives who must sit immediately next to each other?

Options: ["Klosnik and Osata", "Londi and Neri", "Londi and Osata", "Manley and Neri", "Manley and Poirier"]

Answer: "Klosnik and Osata"

Explanation: The stem says that Londi sits next to Poirier. Get this new information down on the page. The set isn?t concerned with who?s to the left and right, so just make a new sketch and put Londi and Poirier next to each other. Where to now? Look for rules that have Londi or Poirier in them. Rule 1 says that Poirier must sit next to Neri. Londi is on one side of Poirier, so Neri must be on the other. Rule 2 says that Londi must sit next to Manley or Neri or both. Here Neri is on one side of Poirier with Londi on the other side, so Manley must be next to Londi. Who?s left? Klosnik and Osata are left to occupy the remaining adjacent chairs in between Manley and Neri. Rule 3 says that Klosnik can?t sit next to Manley, so Klosnik must sit next to Neri while Osata sits next to Manley. The complete ordering is now set, so it?s a simple matter of skimming the choices for the pair that must sit together. Klosnik and Osata must sit next to each other, and that is the answer.

Question 3:

Context: Exactly six trade representatives negotiate a treaty: Klosnik, Londi, Manley, Neri, Osata, Poirier. There are exactly six chairs evenly spaced around a circular table. The chairs are numbered

1 through 6, with successively numbered chairs next to each other and chair number 1 next to chair number 6. Each chair is occupied by exactly one of the representatives. The following conditions apply: Poirier sits immediately next to Neri. Londi sits immediately next to Manley, Neri, or both. Klosnik does not sit immediately next to Manley. If Osata sits immediately next to Poirier, Osata does not sit immediately next to Manley.

Question: If Klosnik sits directly between Londi and Poirier, then Manley must sit directly between

Options: ["Londi and Neri", "Londi and Osata", "Neri and Osata", "Neri and Poirier", "Osata and Poirier"]

Answer: "Londi and Osata"

Explanation: Once again, get the new information down and check the rules. We?re not concerned with the ?left/right? issue, so just draw a new sketch and put Klosnik between Londi and Poirier. Now look for rules with Klosnik, Londi, or Poirier. Rule 1 says that Poirier and Neri must always sit next to each other. Klosnik is next to Poirier on one side, so Neri must be on the other side of Poirier. Our new sketch clearly shows that Londi and Neri aren?t next to each other, which means it?s time to enact Rule 2: Londi must have Manley beside her. Only one entity and one slot remain, so Osata will fill in the chair between Manley and Neri. The new and complete sketch looks like this:

The question asks for the reps that Manley sits between, and that?s Londi and Osata.

Question 4:

Context: Exactly six trade representatives negotiate a treaty: Klosnik, Londi, Manley, Neri, Osata, Poirier. There are exactly six chairs evenly spaced around a circular table. The chairs are numbered 1 through 6, with successively numbered chairs next to each other and chair number 1 next to chair number 6. Each chair is occupied by exactly one of the representatives. The following conditions apply: Poirier sits immediately next to Neri. Londi sits immediately next to Manley, Neri, or both. Klosnik does not sit immediately next to Manley. If Osata sits immediately next to Poirier, Osata does not sit immediately next to Manley.

Question: If Neri sits immediately next to Manley, then Klosnik can sit directly between

Options: ["Londi and Manley", "Londi and Poirier", "Neri and Osata", "Neri and Poirier", "Poirier and Osata"]

Answer: Poirier and Osata

Explanation: Once again, all you have to do is create a new sketch and add the new information: Neri is next to Manley. By now you should be used to putting Poirier and Neri together. Manley is on one side of Neri, so Poirier must be on the other. You should also be used to placing Londi next to Manley and/or Neri. There?s no open chair next to Neri, so Londi must go next to Manley. Osata and Klosnik are left to fill in the two chairs between Poirier and Londi, and this time nothing forbids either of these people from taking either of the remaining chairs. The sketch therefore looks like this:

The question asks which reps Klosnik can sit between. Depending on where Klosnik and Osata sit, Klosnik can either sit between Poirier and Osata or Osata and Londi. The test makers chose the former in choice Poirier and Osata.

Question 5:

Context: Exactly six trade representatives negotiate a treaty: Klosnik, Londi, Manley, Neri, Osata, Poirier. There are exactly six chairs evenly spaced around a circular table. The chairs are numbered 1 through 6, with successively numbered chairs next to each other and chair number 1 next to chair number 6. Each chair is occupied by exactly one of the representatives. The following conditions apply: Poirier sits immediately next to Neri. Londi sits immediately next to Manley, Neri, or both. Klosnik does not sit immediately next to Manley. If Osata sits immediately next to Poirier, Osata does not sit immediately next to Manley.

Question: If Londi sits immediately next to Manley, then which one of the following is a complete and accurate list of representatives any one of whom could also sit immediately next to Londi?

Options: ["Klosnik", "Klosnik, Neri", "Neri, Poirier", "Klosnik, Osata, Poirier", "Klosnik, Neri, Osata, Poirier"]

Answer: "Klosnik, Neri, Osata, Poirier"

Explanation: We?re helped immensely in this question by referring to our previous work. Manley is on one side of Londi, and the question asks for a complete list of all of the reps who could be on the other side. In the previous question, Q. 4, Londi was next to Manley on one side and could be next to either Klosnik or Osata on the other. This immediately allows us to eliminate (A), (B), and (C), none of which includes Osata. (Incidentally, (C) is doubly wrong by not including Klosnik.) (D) and (E) are left. How are these two choices different? (E) includes Neri while (D) does not. If we can prove that Neri can be on the other side of Londi, then (E) is the answer; if not, we go with (D). Is it possible for Neri to sit on the other side of Londi? Sure, here is the complete ordering:

Neri must be included, so "Klosnik, Neri, Osata, Poirier" is correct

Question 6:

Context: Exactly six trade representatives negotiate a treaty: Klosnik, Londi, Manley, Neri, Osata, Poirier. There are exactly six chairs evenly spaced around a circular table. The chairs are numbered 1 through 6, with successively numbered chairs next to each other and chair number 1 next to chair number 6. Each chair is occupied by exactly one of the representatives. The following conditions apply: Poirier sits immediately next to Neri. Londi sits immediately next to Manley, Neri, or both. Klosnik does not sit immediately next to Manley. If Osata sits immediately next to Poirier, Osata does not sit immediately next to Manley.

Question: If Londi sits immediately next to Neri, which one of the following statements must be false?

Options: ["Klosnik sits immediately next to Osata.", "Londi sits immediately next to Manley.", "Osata sits immediately next to Poirier.", "Neri sits directly between Londi and Poirier.", "Osata sits directly between Klosnik and Manley."]

Answer: "Osata sits immediately next to Poirier."

Explanation: Once again, don?t hesitate to quickly redraw the master sketch including the new information from the stem (Londi next to Neri). Londi is on one side of Neri, so Rule 1 forces Poirier to sit on the other side of Neri. Where to now? We?re left with Klosnik, Manley, and Osata to fill in the remaining three adjacent slots. We know from Rule 3 that Klosnik and Manley can?t sit next to each other, so they will have to be separated by Osata. Either Klosnik or Manley will sit next to Londi while the other sits next to Poirier?and don?t forget Osata in between Klosnik and Manley, no matter which way Klosnik and Manley sit. With the exception of Klosnik and Manley, this ordering is completely set. Now move on to the choices, keeping in mind that we?re looking for the choice that must be false.

(A) must be true. Klosnik must sit between either Osata and Londi or Osata and Poirier.

(B) could be true. Manley could sit between Londi and Osata with Klosnik sitting between Poirier and Osata.

(C) No way. Osata can?t sit next to Poirier. She must sit between Klosnik and Manley, as we deduced. (C) must be false and is the answer.

(D) must be true. We deduced from the information given in the stem that Neri must sit between Londi and Poirier.

(E) must be true. As we saw in our original analysis and again in the context of correct choice (C), Osata must sit between Klosnik and Manley.

Question 7:

Context: Exactly six trade representatives negotiate a treaty: Klosnik, Londi, Manley, Neri, Osata, Poirier. There are exactly six chairs evenly spaced around a circular table. The chairs are numbered 1 through 6, with successively numbered chairs next to each other and chair number 1 next to chair number 6. Each chair is occupied by exactly one of the representatives. The following conditions apply: Poirier sits immediately next to Neri. Londi sits immediately next to Manley, Neri, or both. Klosnik does not sit immediately next to Manley. If Osata sits immediately next to Poirier, Osata does not sit immediately next to Manley.

Question: If Klosnik sits immediately next to Osata, then Londi CANNOT sit directly between

Options: ["Klosnik and Manley", "Klosnik and Neri", "Manley and Neri", "Manley and Poirier", "Neri and Osata"]

Answer: "Neri and Osata"

Explanation: This stem tells us that Klosnik sits next to Osata. And we can?t take it any further. It looks like we?ll just have to check each choice. But don?t despair! Use your previous work. Look for instances where Klosnik and Osata sat next to each other and see which reps Londi was sitting between in those situations. This question asks who Londi can?t sit between, so we can eliminate any choice that is disproved by those previous instances. In the previous question, Klosnik was next to Osata, and in that setup, Londi could sit between either Klosnik and Neri or Manley and Neri. Eliminate choices (B) and (C). Where else was Klosnik next to Osata? In Q. 4, Klosnik and Osata sat together, and in that scenario, we saw it was possible for Londi to sit between Klosnik and Manley?eliminate choice (A). Finally, in question 2, Klosnik and Osata sat together, and Londi sat between Manley and Poirier. Eliminate choice (D). Choice (E) remains and is the answer.

Question 8:

Context: There are eight persons S1, S2, S3, S4, S5, S6, S7 and S8 sitting around a circular table not necessarily in the same order. Each of the persons is facing towards the centre. S7 sits second to the right of S3. S2 sits third to the left of S4, who is the neighbour of S7. S6 is neither the neighbour of S2 nor S7. Neither S1 is the neighbour of S2 nor S5 is the neighbour of S3.

Question: Who sits second to the right of the person who sits third to the left of S2?

Options: ["S5", "S1", "S3", "S6", "None of these"

Answer: "S5"

Explanation: S7 sits second to the right of S3.

S2 sits third to the left of S4, who is the neighbour of S7. (So S4 sits to the immediate left of S7.)

S6 is neither the neighbour of S2 nor S7. (S6 sits opposite S3.)

Neither S1 is the neighbour of S2 nor S5 is the neighbour of S3. (So, S1 sits immediate right of S7 and S5 sits immediate left of S2.)

The remaining seat will be occupied by S8.

S5 sits second to the right of the person who sits third to the left of S2.

Question 9:

Context: There are eight persons S1, S2, S3, S4, S5, S6, S7 and S8 sitting around a circular table not necessarily in the same order. Each of the persons is facing towards the centre. S7 sits second to the right of S3. S2 sits third to the left of S4, who is the neighbour of S7. S6 is neither the neighbour of S2 nor S7. Neither S1 is the neighbour of S2 nor S5 is the neighbour of S3.

Question: What is the position of S8 with respect to S7?

Options: ["Second to the left", "Third to the left", "Immediate left", "Third to the right", "None of these"]

Answer: "Third to the left"

Explanation: S8 is third to the left of S7.

Question 10:

Context: There are eight persons S1, S2, S3, S4, S5, S6, S7 and S8 sitting around a circular table not necessarily in the same order. Each of the persons is facing towards the centre. S7 sits second to the right of S3. S2 sits third to the left of S4, who is the neighbour of S7. S6 is neither the neighbour of S2 nor S7. Neither S1 is the neighbour of S2 nor S5 is the neighbour of S3.

Question: How many persons sit between S5 and S8 when counted clockwise from S5?

Options: ["Two", "One", "Three", "Five", "None of these"]

Answer: "Five"

Explanation: FIve persons sit between S5 and S8 when counted clockwise from S5.

Question 11:

Context: There are eight persons S1, S2, S3, S4, S5, S6, S7 and S8 sitting around a circular table not necessarily in the same order. Each of the persons is facing towards the centre. S7 sits second to the right of S3. S2 sits third to the left of S4, who is the neighbour of S7. S6 is neither the neighbour of S2 nor S7. Neither S1 is the neighbour of S2 nor S5 is the neighbour of S3.

Question: Who sits opposite S6?

Options: ["S1", "S3", "S4", "S5", "None of these"]

Answer: "S3"

Explanation: S3 sits opposite S6.

Question 12:

Context: There are eight persons S1, S2, S3, S4, S5, S6, S7 and S8 sitting around a circular table not necessarily in the same order. Each of the persons is facing towards the centre. S7 sits second to the right of S3. S2 sits third to the left of S4, who is the neighbour of S7. S6 is neither the neighbour of S2 nor S7. Neither S1 is the neighbour of S2 nor S5 is the neighbour of S3.

Question: Who sits second to the right of S1?

Options: ["S2", "S4", "S5", "S7"]

Answer: "S5"

Explanation: S5 sits second to the right of S1.

Question 13:

Context: A small software firm has four offices, numbered 1, 2, 3, and 4. Each of its offices has exactly one computer and exactly one printer. Each of these eight machines was bought in either 1987, 1988, or 1989. The eight machines were bought in a manner consistent with the following conditions: The computer in each office was bought either in an earlier year than or in the same year as the printer in that office. The computer in office 2 and the printer in office 1 were bought in the same year. The computer in office 3 and the printer in office 4 were bought in the same year. The computer in office 2 and the computer in office 3 were bought in different years. The computer in office 1 and the printer in office 3 were bought in 1988.

Question: If the computer in office 3 was bought in an earlier year than the printer in office 3 was, then which one of the following statements could be true?

Options: ["The computer in office 2 was bought in 1987.", "The computer in office 2 was bought in 1988.", "The computer in office 4 was bought in 1988.", "The printer in office 4 was bought in 1988.", "The printer in office 4 was bought in 1989."]

Answer: "The computer in office 2 was bought in 1988."

Explanation: Note that we shortened the dates from 1987, 1988, 1989 to just 7, 8, 9. This is a good timesaving trick. The dates are all identical except for the last digit, so we?ll only concern ourselves with that digit.

The Rules:

1) In each office, the computer was bought either earlier than or the same year as the printer in that office. In other words, if the computer in 1 was bought in 1988, then the printer in 1 must have been bought in 1988 or 89. Build this directly into the sketch. In between each office?s C and P, draw a ?£.?

2) Here?s information that connects the machines in two different offices. The computer in office 2 and the printer in office 1 were bought the same year. Build this directly into the sketch by drawing arrows between the boxes representing these two machines.

3) More inter-office information?the computer in office 3 and the printer in office 4 were bought in the

same year. Again, build this directly into your sketch by drawing arrows connecting these two squares of the grid.

4) This time we?re given two machines bought in different years: the computer in office 2 and the computer in office 3. Build this information directly into the sketch by placing a ?X? on the line between the corresponding squares in the grid.

5) gives the only concrete information of the bunch. The computer in office 1 and the printer in office 3 were both bought in 88. Build this right into the sketch.

Key Deductions:

This set has a ton of entities and a ton of rules. Both of these facts are hints that there?s some major deducing to be done here. So let?s get started.

Begin with the concrete info in Rule 5. The computer in office 1 was bought in 88. Rule 1 says that each office?s computer was bought earlier than or the same year as that office?s printer. So the printer in office 1 must have been bought in 88 or 89. Add this to the sketch.

Rule 2 says that the printer in office 1 was bought the same year as the computer in office 2. Since we just saw that the printer in office 1 was bought in 88 or 89, so was the computer in office 2. Add this to the sketch.

From there Rule 1 comes back into play. Since the computer in office 2 was bought in 88 or 89, the printer in office 2 must also have been bought in 88 or 89. Add this to the sketch.

Back to Rule 5. Since the printer in office 3 was bought in 88, the computer in office 3 (bought earlier than or the same year as the printer?Rule 1) must have been bought in 87 or 88. Add this to the sketch.

Since the computer in office 3 was bought in 87 or 88, we can combine this with Rule 3 to deduce that the printer in office 4 must also have been bought in 87 or 88. Add this as well.

Finally, since the printer in office 4 was bought in 87 or 88, Rule 1 means that the computer in office 4 must also have been bought in 87 or 88. Add this to the sketch.

The printer in office 3 was bought in 88 (Rule 5). The only way for the computer in 3 to be bought earlier is if it was bought in 87. Rule 3 says that the computer in 3 and the printer in 4 were bought the same year, so the printer in office 4 must have also been bought in 87. Eliminate (D) and (E). Each office?s computer was bought in the same year as or earlier than the printer in that office (Rule 1), so since the printer in 4 was bought in 87, the only year that the computer in 4 could have been bought is also 87. Eliminate (C). (A) and (B) are all that?s left. We deduced in the setup that the computer in office 2 must have been bought in 88 or 89. Cross off (A), which leaves (B), the answer.

Question 14:

Context: A small software firm has four offices, numbered 1, 2, 3, and 4. Each of its offices has exactly one computer and exactly one printer. Each of these eight machines was bought in either 1987, 1988, or 1989. The eight machines were bought in a manner consistent with the following conditions: The computer in each office was bought either in an earlier year than or in the same year as the printer in that office. The computer in office 2 and the printer in office 1 were bought in the same year. The computer in office 3 and the printer in office 4 were bought in the same year. The computer in office 2 and the computer in office 3 were bought in different years. The computer in office 1 and the printer in office 3 were bought in 1988.

Question: Which one of the following statements could be true?

Options: ["The printer in office 1 was bought in 1987.", "The computer in office 2 was bought in 1987.", "The computer in office 3 was bought in 1989.", "The printer in office 4 was bought in 1988.", "The printer in office 4 was bought in 1989."]

Answer: "The computer in office 3 was bought in 1989."

Explanation: Here?s a could be true question with no new information. Normally this type of question might take a lot of time to answer. Here, however, with all the good work we did up front, we should be able to eliminate the wrong answer choices quickly. Just compare each choice against our master sketch.

(A) No, the printer in 1 must have been bought in 88 or 89.

(B) No, the computer in 2 must have been bought in 88 or 89.

(C) No, the computer in 3 must have been bought in 87 or 88.

(D) Yes, the printer in 4 could have been bought in 88 (or 87). (D) could be true and is the answer.

(E) No, the printer in 4 must have been bought in 87 or 88.

Question 15:

Context: A small software firm has four offices, numbered 1, 2, 3, and 4. Each of its offices has exactly one computer and exactly one printer. Each of these eight machines was bought in either 1987, 1988, or 1989. The eight machines were bought in a manner consistent with the following conditions: The computer in each office was bought either in an earlier year than or in the same year as the printer in that office. The computer in office 2 and the printer in office 1 were bought in the same year. The computer in office 3 and the printer in office 4 were bought in the same year. The computer in office 2 and the computer in office 3 were bought in different years. The computer in office 1 and the printer in office 3 were bought in 1988.

Question: If as few of the eight machines as possible were bought in 1987, then what is the exact number of machines that were bought in 1987?

Options: ["0", "1", "2", "3", "4"]

Answer: "0"

Explanation: We want as few machines bought in 87 as possible. Check our master sketch. There are only three machines that could have been bought in 87. The computer in 3, the computer in 4, and the printer in 4 all were bought in 87 or 88. The stem asks for the fewest number of machines bought in 87, so could all three of these have been bought in 88? Sure. Rule 3 says that the computer in 3 was bought the same year as the printer in 4, so both of these could have been bought in 88. Rule 1 says that the computer in each office must have been bought the same year as or before the printer in that office, so the computer in 4 could have been bought in 88 as well. All of the other machines couldn?t have been purchased in 87 (see Key Deductions), so it turns out that we need not have any 87 machines. In other words, the fewest possible number of machines that were bought in 87 is 0, choice (A).

Question 16:

Context: A small software firm has four offices, numbered 1, 2, 3, and 4. Each of its offices has exactly one computer and exactly one printer. Each of these eight machines was bought in either 1987, 1988, or 1989. The eight machines were bought in a manner consistent with the following conditions: The computer in each office was bought either in an earlier year than or in the same year as the printer in that office. The computer in office 2 and the printer in office 1 were bought in the same year. The computer in office 3 and the printer in office 4 were bought in the same year. The computer in office 2 and the computer in office 3 were bought in different years. The computer in office 1 and the printer in office 3 were bought in 1988.

Question: If the computer in office 4 was bought in 1988, then which one of the following statements must be true?

Options: ["The printer in office 1 was bought in 1988.", "The printer in office 1 was bought in 1989.", "The computer in office 2 was bought in 1988.", "The computer in office 3 was bought in 1987.", "The printer in office 4 was bought in 1989."]

Answer: "The printer in office 1 was bought in 1989."

Explanation: Remember that the printer in each office was bought either the same year as or later than the computer in that office (Rule 1). If the computer in 4 was bought in 88, the printer in 4 must also have been bought in 88 (we ruled out 89 as a possibility for the printer in 4 under Key Deductions). We?ve just made a new deduction, so stop and see if that is an answer choice. It?s not (although we can eliminate (E) which has the printer in 4 bought in 89), so keep looking.

Rule 3 says that the printer in 4 and the computer in 3 were bought the same year, so the computer in 3 must have been bought in 88. Is that a choice? No, but we can cross off (D) which has it bought in 87.

Rule 4 says that the computer in 2 can?t have been purchased the same year as the computer in 3, so here the computer in 2 must have been bought in 89 (again check Key Deductions to see how 87 was eliminated for the computer in 2). Is ?computer in 2 bought in 89? an answer choice? No, but we now know that (C) must be false, so cross it off.

Moving along, Rule 2 says that the computer in 2 and the printer in 1 were bought the same year, so the printer in 1 was bought in 89, and finally that?s the answer, choice (B).

Question 17:

Context: A small software firm has four offices, numbered 1, 2, 3, and 4. Each of its offices has exactly one computer and exactly one printer. Each of these eight machines was bought in either 1987, 1988, or 1989. The eight machines were bought in a manner consistent with the following conditions: The computer in each office was bought either in an earlier year than or in the same year as the printer in that office. The computer in office 2 and the printer in office 1 were bought in the same year. The computer in office 3 and the printer in office 4 were bought in the same year. The computer in office 2 and the computer in office 3 were bought in different years. The computer in office 1 and the printer in office 3 were bought in 1988.

Question: If the computer in office 3 was bought in 1988, then which one of the following statements could be true?

Options: ["The printer in office 1 was bought in 1988.", "The computer in office 2 was bought in 1987.", "The printer in office 2 was bought in 1988.", "The computer in office 4 was bought in 1987.", "The printer in office 4 was bought in 1989."]

Answer: "The printer in office 2 was bought in 1988."

Explanation: If the computer in 3 was bought in 88, Rule 3 dictates that the printer in 4 was bought in 88 as well. Rule 4 (computer in 3 and computer in 2 bought in different years) means that the computer in 2 was bought in 89. From there, Rule 2 (computer in 2 and printer in 1 bought in the same year) insists that the printer in 1 was bought in 89. Also, since the computer in 2 was bought in 89, Rule 1 means that the printer in 2 was also bought in 89. The stem asks for what could be true. The only machine that still has more than one option is the computer in 4 which could have been bought in 87 or 88. Look first at any choice that includes the computer in 4. Sure enough, choice (D), the computer in 4 being bought in 87, is the only possible choice.

Question 18:

Context: A small software firm has four offices, numbered 1, 2, 3, and 4. Each of its offices has exactly one computer and exactly one printer. Each of these eight machines was bought in either 1987, 1988, or 1989. The eight machines were bought in a manner consistent with the following conditions: The computer in each office was bought either in an earlier year than or in the same year as the printer in that office. The computer in office 2 and the printer in office 1 were bought in the same year. The computer in office 3 and the printer in office 4 were bought in the same year. The computer in office 2 and the computer in office 3 were bought in different years. The computer in office 1 and the printer in office 3 were bought in 1988.

Question: Suppose that the computer in office 2 and the computer in office 3 had been bought in the same year as each other. If all of the other conditions remained the same, then which one of the following machines could have been bought in 1989?

Options: ["the printer in office 1", "the computer in office 2", "the printer in office 2", "the computer in office 4", "the printer in office 4"]

Answer: "the printer in office 2"

Explanation: And here?s the one question that absolutely must have a new sketch. Now we?re to consider what happens when the opposite of Rule 4 is true. The computer in 2 and the computer in 3 now are bought in the same year. Take a moment and create a new master sketch including this new information. Look at the original sketch and note what information still holds. The deduction that the printer in 1 was bought in 88 or 89 still holds, as does Rule 2 which means that the computer in 2 was also bought in 88 or 89. The stem says that the computers in 2 and 3 were bought in the same year, so the computer in 3 must also have been bought in 88 or 89. But wait. The printer in 3 was bought in 88, so Rule 1 means that the computer in 3 can only have been bought in 88. This also means that the computer in 2 was also bought in 88 (thanks to the new information in the stem). From there, Rule 2 means that the printer in 1 was bought in 88 as well. Since the computer in 3 was bought in 88, Rule 3 forces the printer in 4 to have been bought in 88. The only machines that possibly weren?t bought in 88 are the printer in 2 (88 or 89) and the computer in 4 (87 or 88). The printer in 2 is the only machine that could have been bought in 89, choice (C).

Question 19:

Context: The eight employees of a company are G, H, I, J, K,M, N, and O. In each of the years 2001 through 2008, exactly one of the employees joined the company.

H joined the company before N.

K joined the company before J.

N and J joined the company before G.

N joined the company before O.

J joined the company before M.

G joined the company before I.

Question: Which one of the following CANNOT be true?

Options: ["H joined the company in 2001", "H joined the company in 2003", "G joined the company in 2004", "M joined the company in 2004", "O joined the company in 2004"]

Answer: "G joined the company in 2004."

Explanation: The Initial Setup:

With most ?free-floating? sequence sets, the most natural way to work is vertically. Put the years along the side and list the employees. Notice that, as in Set 2, we?ve shortened the years to just 1 through 8. (You could also have worked horizontally by listing the years left to right like a timeline. Whichever way you choose, just make sure that your sketch is neat and not misleading.)

The Rules:

A good way to start is to locate a employee or employees who might come at the top of the sketch; that is, anyone who doesn?t seem to have joined the company after other employees. If we scan the rules, we see that H in Rule 1 and K in Rule 2 both fit that description. Let?s therefore start by putting an ?H? and a ?K? at the top of the sketch.

H joined before N. From the H at the top of the sketch, add a line down to an N.

K joined the company before J. Next to the H at the top of the sketch, we already have a K. From that K draw a line down to a J.

N and J both joined the company before G. There?s already an N and a J in the sketch, so draw lines down from each of them to a G.

gives more information about N. N joined the company before O. From the N in the sketch, draw another line down to an O.

Here?s more information about J. J joined the company before M. From the J in the sketch, draw another line down to an M.

G joined the company before I. From the G in the sketch, draw a line down to an I.

Key Deductions:

The first thing to do is check and make sure that all of the entities are included in the master sketch. If one isn?t, that?s a ?floater? that can be plugged in anywhere. Fortunately, all of the entities are included in the sketch, so we can depend solely on our master sketch to answer every question we?ll face.

Before moving on, take a moment and review the sketch. Some things should be obvious. For instance, K joined the company before G, I joined the company after N, etc. Also take note of the possibilities regarding the specific years; what entities could have joined the company in 2001? What entities could have joined in 08? H and K are the only entities that aren?t below an entity, so either H or K must have joined in 01. I, O, and M are the only employees with no entities below them, so they?re the only ones who could have joined in 08. While these aren?t earth-shattering deductions, it?s a good idea to take a moment and review what the completed sketch can tell you. This sets up the set?s parameters in your mind.

It?s also wise to take a moment and recognize what the sketch can?t tell us. Be careful not to assume any relationship between employees that aren?t connected by lines. For example, I, in our sketch, is slightly lower than M and O. But we can?t assume that M and O joined the company before I. We don?t know that. Be very careful when dealing with the two ?arms? of the sketch. The ?K?J?M? arm is not connected to the ?H?N?O? arm. Therefore, we can?t deduce any relationship between the two. M, for instance, is quite low on the sketch, but since it?s not connected to the ?H?N?O? arm, M could have joined the company even before H. Likewise, O could have joined before K.

In a ?free-floating? sequence set like this (when all the entities are in the master sketch), just check each choice against the sketch, using it to figure out the choice that is impossible.

(A) H (or K) could have joined the company in 01. Answer choice (A) can be true and isn?t the answer.

(B) If K joined in 01 and J in 02, then H could have joined in 03. (B) can be true and isn?t the answer.

(C) Four entities, H, K, J, and N are all above G in the sketch, so at least four employees joined the company before G. The earliest that G could have joined the company is 05. Answer choice (C) can?t be true and is the answer. Quickly, here is why choice (D) and choice (E) can be true.

(D) M could have joined the company anytime from 03 (K and J joined earlier) to 08.

(E) O could have joined the company anytime from 03 (H and N joined earlier) to 08.

Question 20:

Context: The eight employees of a company are G, H, I, J, K,M, N, and O. In each of the years 2001 through 2008, exactly one of the employees joined the company.

H joined the company before N.

K joined the company before J.

N and J joined the company before G.

N joined the company before O.

J joined the company before M.

G joined the company before I.

Question: If James joined the firm in 1962, which one of the following CANNOT be true?

Options: ["H joined the company in 2003", "M joined the company in 2003", "H joined the company in 2004", "N joined the company in 2004", "O joined the company in 2004"]

Answer: "O joined the company in 2004."

Explanation: Again, we can solely depend on the sketch. If J joined in 02, exactly one employee joined earlier (the one that joined in 01). Look at the sketch, K must have joined the company earlier than J, so K joined in 01. That?s all we know for sure. Either H or M could have joined in 03, either H or M or N could have joined in 04, and so on. Check each choice look for the one that can?t be true.

(A) and (B) Either H or M could have joined in 03 after K (01) and J (02).

(C) Could H have joined in 04? Sure, here is the ordering: K, J, M, H, N, G, I, O.

(D) Could N have joined in 04? Sure, here is the ordering: K, J, H, N, M, G, I, O.

(E) K joined in 01 and J joined in 02. At least H and N joined before O, so the earliest O could have joined is in 05. (E) can?t be true and is the answer.

Question 21:

Context: The eight employees of a company are G, H, I, J, K,M, N, and O. In each of the years 2001 through 2008, exactly one of the employees joined the company.

H joined the company before N.

K joined the company before J.

N and J joined the company before G.

N joined the company before O.

J joined the company before M.

G joined the company before I.

Question: Of the following, which one is the latest year in which James could have joined the firm?

Options: ["2002", "2003", "2004", "2005", "2006"]

Answer: "2005"

Explanation: We?re asked for the latest year that J could have joined the company. There are two ways to go about this: We can put as many employees as possible before J, or we can see which employees MUST be after J. Since the latter deals with what is DEFINITELY true while the former deals with what is POSSIBLE only, the latter is most likely going to be simpler and, more importantly, quicker. Look at the sketch, only G, I, and M are definitely placed below J. Therefore if G, I, and M joined the company in 06, 07, and 08, the latest that J could have joined the company is 05, choice (D).

Question 22:

Context: The eight employees of a company are G, H, I, J, K,M, N, and O. In each of the years 2001 through 2008, exactly one of the employees joined the company.

H joined the company before N.

K joined the company before J.

N and J joined the company before G.

N joined the company before O.

J joined the company before M.

G joined the company before I.

Question: If Owens joined the firm in 1965 and MacNeil joined it in 1967, one can determine the years in which exactly how many of the other partners joined the firm?

Options: ["1", "2", "3", "4", "5"]

Answer: "2"

Explanation: From the master sketch, we?re able to deduce that either I, M, or O must have joined the company last, in 08. This question stem assigns O to 05 and M to 07. Therefore, I must have joined the company in 08. Now check the master sketch. H and N joined before O in the 01-04 slots. K and J joined before M and also before G. Since H and N must occupy two of the four 01-04 slots, K and J will take the other two slots which leaves G (which must go AFTER K and J) to take the remaining 06 slot. G and I are the only other entities whose slots can be determined, choice (B).

Question 23:

Context: The eight partners of a law firm are Gregg, Hodges, Ivan, James, King, MacNeil, Nader, and Owens. In each of the years 1961 through 1968, exactly one of the partners joined the firm. Hodges joined the firm before Nader. King joined the firm before James. Nader and James joined the firm before Gregg. Nader joined the firm before Owens. James joined the firm before MacNeil. Gregg joined the firm before Ivan.

Question: Assume that Owens joined the law firm before MacNeil. Of the following, which one is the earliest year in which MacNeil could have joined it?

Options: ["2003", "2004", "2005", "2006", "2007"]

Answer: "2006"

Explanation: Here we?re to assume that O joined the company before M, and we?re looking for the earliest that M could have joined. Since H and N joined the company before O, all three of these must have joined the company before M. K and J joined the company before M (as always), so that makes a total of five employees that must have joined the company before M. These five will at least take up the 01-05 slots, so the earliest that M could have joined the company is 06, choice (D).

Question 24:

Context: A railway company has exactly three lines: line 1, line 2, and line 3. The company prints three sets of tickets for January and three sets of tickets for February: one set for each of its lines for each of the two months. The company's tickets are printed in a manner consistent with the following conditions: Each of the six sets of tickets is exactly one of the following colors: green, purple, red, yellow. For each line, the January tickets are a different color than the February tickets. For each month, tickets for different lines are in different colors. Exactly one set of January tickets is red. For line 3, either the January tickets or the February tickets, but not both, are green. The January tickets for line 2 are purple. No February tickets are purple.

Question: If the line 3 tickets for January are red, then which one of the following statements must be true?

Options: ["The line 1 tickets for January are green.", "The line 1 tickets for January are yellow.", "The line 1 tickets for February are red.", "The line 2 tickets for February are yellow.", "The line 3 tickets for February are green."]

Answer: "The line 3 tickets for February are green."

Explanation: The Action:

After reading the opening paragraph and rules, we see that this set requires that we match up the January and February tickets for three railway lines with the color of each?a matching set. The action doesn?t become fully apparent until Rule 1 which introduces the concept of the ?color? of each set of tickets. Some students were thrown by the notion of ?sets? of tickets in the opening paragraph. They were worried that this implied a whole lot of tickets. If we read carefully, though, we know that that?s not a problem. There is one ?set? of tickets per month, as simple as that.

The Key Issues are:

1) What color is each of the six sets of tickets?

2) What sets of tickets can, must, or cannot be the same color as what other sets of tickets?

The Initial Setup:

As with Set 2 and other matching sets, a grid or lists both work well. In Set 2, we talked about identifying the variable and fixed aspects when using a grid. What are the variable and fixed points in this set? The two months, January and February, are fixed. They don?t change. The three railway lines are also fixed, not going anywhere. What can change from line to line and month to month is the color of the sets of tickets. This is the variable aspect. So when creating our grid, the two fixed points (months and lines) will go along the top and side, and we will fill in the grid squares with the variable (color):

The Rules:

1) gives the information that we?ve already included in the sketch above, namely that each set of tickets will be green, purple, red, or yellow.

2) Let?s take our time and make sure that we fully understand this rule. The January set of tickets of each line (1, 2, and 3) will be a different color from the February set of tickets of that line. Let?s do a ?what if? to make sure we have a handle on this rule. If the Jan 1 (January line 1) set of tickets is red, then the Feb 1 (February line 1) set of tickets cannot be red. Draw a big ?X? between each line?s January and February squares in our grid.

3) Again, we need to take our time when decoding this rule. Within each month, the set of tickets of

each line must be a different color than the set of tickets of the other two lines. Let?s do another ?what if.? If the Jan 1 (January line 1) set of tickets is red, then the Jan 2 (January line 2) set of tickets can?t be red. Between each month?s 1 and 2 squares draw a big ?X,? and between each month?s 2 and 3 squares draw a big ?X.?

4) Of the three sets of January tickets, exactly one must be red. Build this directly into our grid. Write ?ex. 1 R? at the bottom of the January column.

5) Once more, take care when translating Rule 5. This rule is quite similar to Rule 4. In Rule 4, exactly one of the sets of January tickets (either line 1, 2, or 3) was red. Here, exactly one of the sets of line 3 tickets (either January or February) must be green. At the end of the line 3 row, write ?ex. 1 G.?

6) Here is a nice, concrete piece of information. The Jan 2 set of tickets is purple. Build this right into the master sketch.

7) Finally, Rule 7 states that none of the sets of February tickets are purple. Write ?NO P? in each of the February squares in our grid.

Key Deductions:

Rule 6 said that Jan 2 is purple. Rule 3 said that within each month, the sets of tickets for the three lines must be of different colors. So we can deduce that Jan 1 and Jan 3 can?t be purple. Rule 7 already said that NO sets of February tickets are purple, so we definitely know that Jan 2 is the only set of tickets that is purple.

We can deduce something else from Rule 7 which says that none of the February tickets are purple.

Rule 3 says that each month?s set of tickets must be different colors. Since none of the February tickets are purple, that means that all three of the other colors must be used exactly once for the three sets of February tickets, one green, one red, and one yellow.

The Final Visualization: Here?s our master sketch:

Rule 5 says that one of the sets of line 3 tickets (either January or February) must be green. The stem says that Jan 3 is red, so Feb 3 must be green, choice (E).

Question 25:

Context: A railway company has exactly three lines: line 1, line 2, and line 3. The company prints three sets of tickets for January and three sets of tickets for February: one set for each of its lines for each of the two months. The company's tickets are printed in a manner consistent with the following conditions: Each of the six sets of tickets is exactly one of the following colors: green, purple, red, yellow. For each line, the January tickets are a different color than the February tickets. For each month, tickets for different lines are in different colors. Exactly one set of January tickets is red. For line 3, either the January tickets or the February tickets, but not both, are green. The January tickets for line 2 are purple. No February tickets are purple.

Question: If one set of the line 2 tickets is green, then which one of the following statements must be true?

Options: ["The line 1 tickets for January are red.", "The line 3 tickets for January are red.", "The line 1 tickets for February are red.", "The line 3 tickets for February are green.", "The line 3 tickets for February are yellow."]

Answer: "The line 1 tickets for January are red."

Explanation: What must be true if one of the sets of line 2 tickets is green? Jan 2 is purple (Rule 6), so the only 2 line left to be green is Feb 2. Is Feb 2 green an answer choice? Nope, keep going. Rule 3 says that no two sets of tickets in the same month can be the same color. Since Feb 2 is green, Feb 3 can?t be green. Rule 5 (either Jan 3 or Feb 3 must be green) comes into effect again and Jan 3 must be green. Is Jan 3 green a choice? No, so keep looking. Rule 4 says that one of the January tickets is red, and since Jan 2 is purple and Jan 3 is green, Jan 1 must be red. And that?s choice (A) and the answer.

Question 26:

Context: A railway company has exactly three lines: line 1, line 2, and line 3. The company prints three sets of tickets for January and three sets of tickets for February: one set for each of its lines for each of the two months. The company's tickets are printed in a manner consistent with the following conditions: Each of the six sets of tickets is exactly one of the following colors: green, purple, red, yellow. For each line, the January tickets are a different color than the February tickets. For each month, tickets for different lines are in different colors. Exactly one set of January tickets is red. For line 3, either the January tickets or the February tickets, but not both, are green. The January tickets for line 2 are purple. No February tickets are purple.

Question: Which one of the following statements could be true?

Options: ["No January ticket is green.", "No February ticket is green.", "Only line 2 tickets are red.", "One set of January tickets is green and one set of January tickets is yellow.", "The line 2 tickets for January are the same color as the line 1 tickets for February."]

Answer: "No January ticket is green."

Explanation: There?s not much to do with this ?could be true? question with no new information but try out each choice.

(A) Could none of the January tickets be green? If none are, we?re left with purple, red, and yellow as the colors of the three sets of January tickets. Jan 2 is purple (Rule 6). Jan 1 could be red, and as long as Feb 3 is green (to fulfill Rule 5), Jan 3 could be yellow. Answer choice (A) could be true and is the answer. Quickly here is why the remaining choices can?t be true:

(B) Since none of the sets of February tickets are purple (Rule 7), exactly one set of the February tickets MUST be green.

(C) The Jan 2 tickets are purple (Rule 6) and one set of the January tickets is red (Rule 4), so either Jan 1 or Jan 3 must be red.

(D) Jan 2 is purple, so if one set of January tickets was green and the other set of January tickets was yellow, there wouldn?t be any set of January tickets that was red which would violate Rule 4.

(E) Jan 2 is purple, and Rule 7 says that absolutely none of the sets of February tickets can be purple.

Question 27:

Context: A railway company has exactly three lines: line 1, line 2, and line 3. The company prints three sets of tickets for January and three sets of tickets for February: one set for each of its lines for each of the two months. The company's tickets are printed in a manner consistent with the following conditions: Each of the six sets of tickets is exactly one of the following colors: green, purple, red, yellow. For each line, the January tickets are a different color than the February tickets. For each month, tickets for different lines are in different colors. Exactly one set of January tickets is red. For line 3, either the January tickets or the February tickets, but not both, are green. The January tickets for line 2 are purple. No February tickets are purple.

Question: Which one of the following statements could be true?

Options: ["Both the line 1 tickets for January and the line 2 tickets for February are green.", "Both the line 1 tickets for January and the line 2 tickets for February are yellow.", "Both the line 1 tickets for January and the line 3 tickets for February are yellow.", "The line 1 tickets for January are green, and the line 3 tickets for February are red.", "The line 3 tickets for January are yellow, and the line 1 tickets for February are red."]

Answer: "Both the line 1 tickets for January and the line 2 tickets for February are yellow."

Explanation: Another ?could be true? question with no new information (but with positive choices, at least?see Bullet Point to Q. 21 above). Again, not much to do with this one but try out each choice.

(A) If Jan 1 and Feb 2 are both green, Rule 3 means that none of the remaining sets of tickets can be green. But Rule 5 insists that either Jan 3 or Feb 3 be green. (A) can?t be true and isn?t the answer.

(B) Can Jan 1 and Feb 2 both be yellow? Sure: Jan 1?Y, Jan 2?P, Jan 3?R; Feb 1?R, Feb 2?Y, Feb 3?G. (B) can be true and is the answer. Quickly, here is why the remaining choices can?t be true:

(C) If Jan 1 is yellow, the only set of January tickets left to be red (as Rule 4 requires) is Jan 3. Rule 5 then requires that Feb 3 be green, not yellow.

(D) If Jan 1 is green, Rule 3 means that none of the other sets of January tickets are green, so Rule 5 again requires that Feb 3 be green, not red.

(E) If Jan 3 is yellow, the only set of January tickets left to be red (as Rule 4 requires) is Jan 1. Since Jan 1 is red, Rule 2 doesn?t permit Feb 1 to also be red.

Question 28:

Context: A railway company has exactly three lines: line 1, line 2, and line 3. The company prints three sets of tickets for January and three sets of tickets for February: one set for each of its lines for each of the two months. The company's tickets are printed in a manner consistent with the following conditions: Each of the six sets of tickets is exactly one of the following colors: green, purple, red, yellow. For each line, the January tickets are a different color than the February tickets. For each month, tickets for different lines are in different colors. Exactly one set of January tickets is red. For line 3, either the January tickets or the February tickets, but not both, are green. The January tickets for line 2 are purple. No February tickets are purple.

Question: If the line 3 tickets for February are yellow, then each of the following statements must be true EXCEPT:

Options: ["One set of January tickets is green.", "One set of line 1 tickets is red.", "One set of line 2 tickets is red.", "The tickets in two of the six sets are red.", "The tickets in two of the six sets are yellow."]

Answer: "The tickets in two of the six sets are yellow."

Explanation: If Feb 3 is yellow, Rule 5 forces Jan 3 to be green. Since Jan 3 is green, Jan 1 is left to be red (as Rule 4 requires). Since none of the sets of February tickets are purple, Feb 1 and Feb 2 must be green and red. Since Jan 1 is red, Rule 2 means that Feb 1 can?t be red and must be green. Feb 2 is left to be red. The entire setup is fixed: Jan 1?R, Jan 2?P, Jan 3?G; Feb 1? G, Feb 2?R, Feb 3?Y. The only choice that doesn?t agree with this setup is (E)?only one of the sets of tickets is yellow.

Question 29:

Context: A railway company has exactly three lines: line 1, line 2, and line 3. The company prints three sets of tickets for January and three sets of tickets for February: one set for each of its lines for each of the two months. The company's tickets are printed in a manner consistent with the following conditions: Each of the six sets of tickets is exactly one of the following colors: green, purple, red, yellow. For each line, the January tickets are a different color than the February tickets. For each month, tickets for different lines are in different colors. Exactly one set of January tickets is red. For line 3, either the January tickets or the February tickets, but not both, are green. The January tickets for line 2 are purple. No February tickets are purple.

Question: Suppose that none of the ticket sets are purple. If all of the other conditions remain the same, then which one of the following statements could be true?

Options: ["None of the January tickets are green.", "None of the February tickets are green.", "None of the line 2 tickets are green.", "No line 1 or line 2 tickets are yellow.", "No line 2 or line 3 tickets are red."]

Answer: "None of the line 2 tickets are green."

Explanation: For this question, none of the sets of tickets are purple. This doesn?t affect the sets of February tickets since none were purple anyway (Rule 7). But since none of the sets of January tickets are purple (sorry Jan 2, you?re not purple anymore), one will be green, one red, and one yellow. These three colors are the only options for both month?s tickets.

Now check the choices looking for the one that can be true. (A) and (B) We can kill both of these choices immediately. Since none of the sets of tickets are purple, all of the other colors must be used exactly once per month. Exactly one set of January tickets and exactly one set of February tickets must be green. (C) Could neither of the sets of line 2 tickets be green? Sure, here is the complete setup: Jan 1?Y, Jan 2?R, Jan 3?G; Feb 1?G, Feb 2?Y, Feb 3?R. (C) could be true and is the answer. (D) If none of the sets of line 1 or line 2 tickets are yellow, then both Jan 3 and Feb 3 must be yellow which Rule 2 forbids. (E) If none of the sets of line 2 or line 3 tickets are red, then both Jan 1 and Feb 1 must be red which Rule 2 forbids

Question 30:

Context: For a standard dice with numbers from 1 to 6 (unless mentioned otherwise) answer the following questions.

Question: When a six-sided die rolls. What will be the probability of getting a prime number?

Answer: 0.5

Explanation: The probability of getting a prime number is 1/2. We can find the probability by following the given steps- We know that the probability of an event is calculated by dividing the number of favorable outcomes and the total number of outcomes.

Probability=Number of favorable outcomes/ Total number of outcomes

We know that a fair die is rolled.

We can obtain 1, 2, 3, 4, 5, or 6.

So, the total number of outcomes on rolling a die is 6.

Now to obtain a prime number, the die should show 2, 3, or 5.

So, the number of favorable outcomes is 3.

We will put the values in the formula to get the probability.

The probability of getting a prime number=3/6

=1/2

Question 31:

Question: Two six-sided dice are rolled, which is more likely to happen: the sum is equal to 10, or the sum is equal to 11?

Answer: P (Sum is 10) > P (Sum is 11)

Explanation: First, write the outcomes that sum up to 10 and call it E10:

E10 = {(4,6), (5,5), (6,4)}

Now, write the outcomes that sum up to 11 and call it E11:

E11 = {(5,6), (6,5)}

Now, we have:

Total Number of outcomes = 36

Number of outcomes that sum up to 10 = 3

Number of outcomes that sum up to 11 = 2

Hence, their probability is:

P(Sum is 10) = 3/36 = 1/12

P(Sum is 11) = 2/36 = 1/18

So, P(Sum is 10) > P(Sum is 11).

Therefore, the probability that the sum is equal to 10 is more likely to happen than a sum equal to 11.

Question 32:

Question: When rolling two six-sided dice, what is the probability of getting a sum of 8?

Answer: "5/36"

Explanation: Step 1: Calculate the total number of outcomes when rolling two dice. Each die has 6 faces, so the total outcomes are 6 * 6 = 36.

Step 2: List all the combinations of the two dice that add up to 8: (2,6), (3,5), (4,4), (5,3), (6,2). There are 5 combinations.

Step 3: The probability of an event is calculated as the number of favorable outcomes divided by the total number of outcomes. Here, it is 5 favorable outcomes for a sum of 8 out of 36 total outcomes.

Step 4: Calculate the probability: P(sum = 8) = 5 / 36.

Final Answer: The probability of getting a sum of 8 when rolling two dice is 5/36

Question 33:

Question: In a game with two eight-sided dice, what is the probability of rolling a double (both dice showing the same number)?

Answer: "1/8"

Explanation: There are 8 favorable outcomes (rolling a double) out of the 64 possible outcomes.

Question 34:

Question: If a fair six-sided die is rolled four times, what is the probability of getting all different numbers?

Answer: "5/18"

Explanation: Assuming the die is a d6 (a standard six-sided die):

The first die is free.

The second die has a 5/6 chance to not match the first.

The third die has a 4/6 (2/3) chance to not match the first or second.

The fourth die has a 3/6 (1/2) chance to not match the first three.

The product of these chances is 10/36, which reduces to 5/18.

Question 35:

Question: When rolling two six-sided dice, what is the probability of getting a sum of 7?

Answer: "1/6"

Explanation: The sample space of rolling 2 dice is as below,

S = {(1, 1) (1, 2) (1, 3) (1, 4) (1, 5) (1, 6) (2, 1) (2, 2) (2, 3) (2, 4) (2, 5) (2, 6) (3, 1) (3, 2) (3, 3) (3, 4) (3, 5) (3, 6) (4, 1) (4, 2) (4, 3) (4, 4) (4, 5) (4, 6) (5, 1) (5, 2) (5, 3) (5, 4) (5, 5) (5, 6) (6, 1) (6, 2) (6, 3) (6, 4) (6, 5) (6, 6)}

n(S) = 36

Let A = sum of numbers is 7 = { (1, 6)(2, 5)(3, 4) (4, 3) (5, 2) (6, 1)}

n(A) = 6

P (Sum of numbers is 7) = n(A) / n(S)

= 6/36 = 1/6

Therefore, the probability of rolling two dice and getting a sum of 7 is 1/6.

Question 36:

Question: If you roll a fair six-sided die three times, what is the probability of getting at least one 6?

Answer: "91/216"

Explanation: The sample space in a 3 times die roll = 6^3 = 216.

Now, P(getting at least one 6) = 1 ? P(getting NO 6).

Probability of getting no 6 in a single die roll = 5/6.

Thus, the probability of getting NO 6 in three die rolls = (5/6) × (5/6) × (5/6) = 125/216.

Therefore, the probability of getting at least one 6:

P = 1 ? 125/216 = 91/216.

Question 37:

Question: In a game with three eight-sided dice, what is the probability of getting at least one even number?

Answer: "7/8"

Explanation: The probability of not getting an even number on a single die is 4/8. So, the probability of not getting an even number on three dice is (4/8)^3. Therefore, the probability of getting at least one even number is 1 - (4/8)^3.

Question 38:

Question: If you roll a fair six-sided die four times, what is the probability of getting at most one 2?

Answer: "125/144"

Explanation: Here?s the explanation in simple text format:

To find the probability of getting at most one 2 when rolling a fair six-sided die four times, follow these steps:

Probability of not rolling a 2:

The probability of not rolling a 2 in a single die roll is 5/6.

Probability of getting no 2's:

The probability of not rolling a 2 in all four rolls is:

(5/6) × (5/6) × (5/6) × (5/6) = 625/1296.

Probability of getting exactly one 2:

There are 4 ways to get exactly one 2 in four rolls. The probability of getting exactly one 2 is:

4 × (1/6) × (5/6) × (5/6) × (5/6) = 500/1296.

Total probability of getting at most one 2:

The probability of getting at most one 2 is the sum of getting no 2's and exactly one 2:

625/1296 + 500/1296 = 1125/1296.

So, the probability of getting at most one 2 is 1125/1296, which is simplified as 125/144

Question 39:

Question: If you roll three six-sided dice, what is the probability of getting at most two 4s?

Answer: "215/216"

Explanation: To find the probability of getting at most two 4's when rolling three six-sided dice, follow these steps:

Probability of not rolling a 4:

The probability of not rolling a 4 in a single die roll is 5/6.

Possible outcomes for at most two 4's:

No 4's: This means all three dice roll something other than 4. The probability is:

(5/6) × (5/6) × (5/6) = 125/216.

Exactly one 4: We need to calculate the probability of getting exactly one 4 in three rolls. There are 3 ways to get exactly one 4 (since any of the three dice could be the one to show 4). The probability is:

$3 \times (1/6) \times (5/6) \times (5/6) = 75/216$.

Exactly two 4's: We need to calculate the probability of getting exactly two 4's in three rolls. There are 3 ways to get exactly two 4's (since any two of the three dice could show 4). The probability is:

$3 \times (1/6) \times (1/6) \times (5/6) = 15/216$.

Total probability of getting at most two 4's:

The probability of getting at most two 4's is the sum of the probabilities of getting no 4's, exactly one 4, or exactly two 4's:

$125/216 + 75/216 + 15/216 = 215/216$.

Question 40:

Context: Answer the following questions for a standard deck of 52 cards.

Question: A card is drawn from well shuffled deck of playing cart. Find the probability that the card drawn is either a king or queen?

Answer: "2/13"

Question 41:

Question: From a deck of playing cards, one card is drawn randomly. What is the probability that the card is red color or king?

Answer: "28/52"

Question 42:

Question: If two cards are drawn from a well-shuffled pack of 52 cards, the probability that they are of the same colour?

Answer: "25/51"

Question 43:

Question: A card is drawn at random from an ordinary deck of 52 playing cards. The probability that the card is a 10 or a spade is:

Answer: "4/13"

Question 44:

Question: A man draws two cards from the deck of 52 cards such that the first drawn card is king, then find the probability that the second card is also king?

Answer: "1/17"

Question 45:

Question: Find the number of ways of picking four cards from a set of 52 playing cards if four cards are of the same unit.

Answer: "2860"

Question 46:

Question: If a card is drawn from a pack of 52 cards, then the probability of getting a queen of club or king of heart is

Answer: "1/26"

Question 47:

Question: What is the probability of drawing a card which is neither red nor a face card?

Answer: "8/13"

Question 48:

Question: What is the probability of drawing two cards from a deck of cards with replacement when the first card is heart and second card is diamond?

Answer: "13/204"

Question 49:

Question: Find the probability of neither a heart nor a red king

Answer: "19/26"

Question 50:

Question: A player X has a biased coin whose probability of showing heads is p, and a player Y has a fair coin. They start playing a game with their coins and play alternately. The player who throws a head first is a winner. If X starts the game, and the probability of winning the game by both players is equal, then the value of 'p' is

Answer: "1/3"

Question 51:

Question: The minimum number of times a fair coin must be tossed so that the probability of getting at least one head is more than 99% is:

Answer: "7"

Question 52:

Question: A coin is biased, so a head is twice as likely to occur as a tail. If the coin is tossed 3 times, then the probability of getting two tails and one head is-

Answer: "2/9"

Question 53:

Question: A fair coin is tossed 6 times. What is the probability of getting a result in the 6th toss, different from those obtained in the first five tosses?

Answer: "1/32"

Question 54:

Question: An unbiased coin is tossed 3 times, if the third toss gets head what is the probability of getting at least one more head?

Answer: "3/4"

Question 55:

Question: The number of possible outcomes, when a coin is tossed 6 times, is

Answer: "64"

Question 56:

Question: If a coin is tossed thrice, find the probability of getting one or two heads.

Answer: "3/4"

Question 57:

Question: A coin is tossed 3 times. The probability of getting a head and a tail alternately is:

Answer: "1/4"

Question 58:

Question: Four coins are tossed simultaneously. What is the probability of getting exactly 2 heads?

Answer: "3/8"

Question 59:

Question: Five coins are tossed once. What is the probability of getting at most four tails ?

Answer: "31/32"