**CDX Distance Learning**

**Exercise #43**

**Circuit Tracing**

**Student Name:** Click or tap here to enter text.

Click or tap the check box next to the answer choice that best completes the statement or answers the question. Viewing the animations will be required to answer the following questions correctly. Read each question and use the link provided in each section to open the animation. Follow the directions in the questions and select the correct answer. When complete, close the animation window and move on to the next question(s).

[**Circuit Tracing Exercise 1: Simple Circuit, 3 Color Animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_CircuitTrace01_C1a/BE_CircuitTrace01_C1a.html)

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| --- | --- | --- | --- | --- | --- | --- |
| 1. Have all the voltage sources been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2. Have all of circuit loads (voltage drops) been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 3. Have all the grounds been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 4. Select the “Feedback” ON/OFF button on the animation. Are all the traced circuits correct with green checkmarks?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5. What is the voltage drop in this circuit?   |  |  |  | | --- | --- | --- | |  | a. | Fuse | |  | b. | Switch | |  | c. | Lamp | |  | d. | Ground | |  |  |  | |  |  |  | |

[**Circuit Tracing Exercise 2: Simple Circuit, 7 Color Animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_CircuitTrace01_C1b/BE_CircuitTrace01_C1b.html)

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| --- | --- | --- | --- | --- | --- | --- |
| 6. Have all the source voltage sources been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- |
| 7. Have all the switched voltage sources been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 8. Have all of circuit loads (voltage drops) been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- |
| 9. Have all the grounds been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- |
| 10. Select the “Feedback” ON/OFF button on the animation. Are all the traced circuits correct with green checkmarks?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11. What is the voltage drop in this circuit?   |  |  |  | | --- | --- | --- | |  | a. | Ground | |  | b. | Lamp | |  | c. | Switch | |  | d. | Fuse | |

[**Circuit Tracing Exercise 3: Courtesy Light Circuit, 3 Color Animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_CircuitTrace02_C1a/BE_CircuitTrace02_C1a.html)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 12. Have all the voltage sources been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- |
| 13. Have all of circuit loads (voltage drops) been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 14. Have all the grounds been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 15. Select the “Feedback” ON/OFF button on the animation. Are all the traced circuits correct with green checkmarks?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16. What is the voltage drop in this circuit?   |  |  |  | | --- | --- | --- | |  | a. | Door switches | |  | b. | Courtesy lamp selector switch | |  | c. | Courtesy lamp | |  | d. | Fuse | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17. What purpose do the four door switches perform in this circuit?   |  |  |  | | --- | --- | --- | |  | a. | With the courtesy light switch in the Door position, they provide the power to the courtesy lamp bulb. | |  | b. | With the courtesy light switch in the Door position, they provide the ground to the courtesy lamp bulb. | |  | c. | With the courtesy light switch in the ON position, they provide the power to the courtesy lamp bulb. | |  | d. | With the courtesy light switch in the ON position, they provide the ground to the courtesy lamp bulb. | |

[**Circuit Tracing Exercise 4: Courtesy Light Circuit, 7 Color Animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_CircuitTrace02_C1b/BE_CircuitTrace02_C1b.html)

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| --- | --- | --- | --- | --- | --- | --- |
| 18. Have all the source voltage sources been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- |
| 19. Are there any switched voltage sources?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 20. Have all of circuit loads (voltage drops) been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- |
| 21. Have all the constant grounds been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| 22. Have all the switched grounds been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- |
| 23. Select the “Feedback” ON/OFF button on the animation. Are all the traced circuits correct with green checkmarks?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 24. What purpose do the four door switches perform in this circuit?   |  |  |  | | --- | --- | --- | |  | a. | With the courtesy light switch in the Door position, they provide the power to the courtesy lamp bulb. | |  | b. | With the courtesy light switch in the ON position, they provide the power to the courtesy lamp bulb. | |  | c. | With the courtesy light switch in the Door position, they provide the ground to the courtesy lamp bulb. | |  | d. | With the courtesy light switch in the ON position, they provide the ground to the courtesy lamp bulb. | |

[**Circuit Tracing Exercise 9: Blower Circuit, 3 Color Animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_CircuitTrace05_C1a/BE_CircuitTrace05_C1a.html)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 25. Have all the voltage sources been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- |
| 26. Have all of circuit loads (voltage drops) been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27. How many loads (voltage drops) are in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 2 | |  | b. | 3 | |  | c. | 4 | |  | d. | 5 | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 28. Have all the grounds been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- |
| 29. Select the “Feedback” ON/OFF button on the animation. Are all the traced circuits correct with green checkmarks?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30. How many voltage sources come out of the blower switch and go into the blower resistor?   |  |  |  | | --- | --- | --- | |  | a. | 1 | |  | b. | 2 | |  | c. | 3 | |  | d. | 4 | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31. How many voltage sources come out of the blower resistor and go into the blower motor relay?   |  |  |  | | --- | --- | --- | |  | a. | 1 | |  | b. | 2 | |  | c. | 3 | |  | d. | 4 | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 32. How many voltage sources are going into the blower motor relay?   |  |  |  | | --- | --- | --- | |  | a. | 1 | |  | b. | 2 | |  | c. | 3 | |  | d. | 4 | |

[**Circuit Tracing Exercise 10: Blower Circuit, 7 Color Animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_CircuitTrace05_C1b/BE_CircuitTrace05_C1b.html)

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| --- | --- | --- | --- | --- | --- | --- |
| 33. Have all the source voltage sources been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- |
| 34. Have all the switched voltage sources they been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- |
| 35. Have all circuit loads (voltage drops) been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| 36. How many loads (voltage drops) are in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 3 | |  | b. | 4 | |  | c. | 5 | |  | d. | 6 | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 37. Which of the following is *not* a load (voltage drop) in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | Blower motor resistor | |  | b. | Blower motor | |  | c. | Blower motor relay | |  | d. | Blower switch | |

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| --- | --- | --- | --- | --- | --- | --- |
| 38. Have all the grounds been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 39. Are there any switched grounds?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40. What part of the circuit controls the relay operation?   |  |  |  | | --- | --- | --- | |  | a. | Source voltage from the 30 A fuse | |  | b. | Switched voltage from the blower resistor | |  | c. | Switched ground from the blower switch | |  | d. | Switched ground from the blower resistor | |

[**Circuit Tracing Exercise 11: Mirror Circuit, 7 Color Animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_CircuitTrace06_C1/BE_CircuitTrace06_C1.html)

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| --- | --- | --- | --- | --- | --- | --- |
| 41. Have all the source voltage sources been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 42. Are there any switched voltage sources?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- |
| 43. Have all the grounds been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 44. Are there any switched grounds?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 45. Are there any switchable voltage/ground sources?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 46. How many switchable voltage/ground circuits are there in this circuit animation?   |  |  |  | | --- | --- | --- | |  | a. | 5 | |  | b. | 6 | |  | c. | 7 | |  | d. | 8 | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 47. How many loads (voltage drops) are in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 4 | |  | b. | 5 | |  | c. | 6 | |  | d. | 8 | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 48. Select the “Feedback” ON/OFF button on the animation. Are all the traced circuits correct with green checkmarks?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 49. What is the purpose of the switchable voltage/ground circuits in the circuit animation?   |  |  |  | | --- | --- | --- | |  | a. | To control only the voltage to the motors | |  | b. | To control only the ground to the motors | |  | c. | To allow both the left mirror up/down and left/right motors to be controlled by one switch | |  | d. | To allow the motors to reverse polarity and run the opposite direction while being controlled by one switch | |

[**Circuit Tracing Exercise 12: BCM Courtesy Light Circuit, 7 Color Animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_CircuitTrace09_C1/BE_CircuitTrace09_C1.html)

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| --- | --- | --- | --- | --- | --- | --- |
| 50. Have all the source voltage sources been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- |
| 51. Have all the switched voltage sources been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 52. Have any/all switched grounds been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 53. Do any of the same loads (voltage drops) have both a switched ground *and* a switched voltage?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 54. Why would some loads (voltage drops) have BCM controlled grounds and voltages?   |  |  |  | | --- | --- | --- | |  | a. | To allow the BCM to control the vanity lights via the ground path | |  | b. | To allow the BCM to turn off the lights via the ground path to prevent battery drain | |  | c. | To allow the BCM to turn off the voltage when the light was requested OFF from the door switches | |  | d. | To allow the BCM to turn off the lights via the voltage path to prevent battery drain | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 55. Are there any switchable voltage/ground sources?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 56. Are there any signal voltages in this circuit animation?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 57. What is the purpose of the signal voltage in this circuit animation?   |  |  |  | | --- | --- | --- | |  | a. | To send a LIN signal from power window motors to the BCM | |  | b. | To send a LIN signal from power window and door lock switches to the BCM | |  | c. | To send a LIN signal for a courtesy light request | |  | d. | To send a LIN signal for a trunk lamp request | |
| 58. Select the “Feedback” ON/OFF button on the animation. Are all the traced circuits correct with green checkmarks?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

**[Circuit Tracing Exercise 13: Power Window Circuit, 7 Color Animation](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_CircuitTrace08_C1/BE_CircuitTrace08_C1.html)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 59. Have all the source voltage sources been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 60. Have all the switched voltage sources been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 61. Have any signal voltages been identified in this animation?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 62. Are there any switchable voltage/ground sources?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 63. Have all the grounds been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 64. Have any switched grounds been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 65. Have all the circuit loads (voltage drops) been identified?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 66. How many loads (voltage drops) are there in this circuit animation?   |  |  |  | | --- | --- | --- | |  | a. | 4 | |  | b. | 5 | |  | c. | 6 | |  | d. | 8 | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 67. How many signal inputs does the BCM have on the LIN circuit?   |  |  |  | | --- | --- | --- | |  | a. | 4 | |  | b. | 5 | |  | c. | 6 | |  | d. | 7 | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 68. How many switchable voltage/ground circuits are there on this circuit animation?   |  |  |  | | --- | --- | --- | |  | a. | 2 | |  | b. | 4 | |  | c. | 6 | |  | d. | 8 | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 69. Select the “Feedback” ON/OFF button on the animation. Are all the traced circuits correct with green checkmarks?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No | |