# Exercise 5 Answers

1.



|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Trace** | **Line** | **Next Line** | **A** | **B** | **N** | **Z** | **V** | **C** |
| 1 | 1 | 2 | 7F | 80 | 0 | 0 | 0 | - |
| 2 | 2 | 3 | 7F | 00 | 0 | 1 | 1 | 1 |
| 3 | 3 | 4 | 80 | 00 | 1 | 0 | 1 | 0 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Trace** | **Line** | **Next Line** | **A** | **B** | **N** | **Z** | **V** | **C** |
| 1 | 1 | 2 | 56 | 78 | 0 | 0 | 0 | - |
| 2 | 2 | 3 | 56 | 00 | 0 | 1 | 0 | 1 |
| 3 | 3 | 4 | 00 | 00 | 0 | 1 | 0 | 1 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Trace** | **Line** | **Next Line** | **A** | **B** | **N** | **Z** | **V** | **C** |
| 1 | 1 | 2 | 00 | 02 | 0 | 0 | 0 | - |
| 2 | 2 | 3 | 00 | 01 | 0 | 0 | 0 | 1 |
| 3 | 3 | 4 | 00 | 01 | 0 | 1 | 0 | 1 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Trace** | **Line** | **Next Line** | **A** | **B** | **N** | **Z** | **V** | **C** |
| 1 | 1 | 2 | 00 | B0 | 0 | 0 | 0 | - |
| 2 | 2 | 3 | 00 | 00 | 0 | 1 | 0 | 1 |
| 3 | 3 | 4 | 01 | 00 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Trace** | **Line** | **Next Line** | **A** | **B** | **N** | **Z** | **V** | **C** |
| 1 | 1 | 2 | FF | 80 | 1 | 0 | 0 | - |
| 2 | 2 | 3 | FF | 00 | 0 | 1 | 1 | 1 |
| 3 | 3 | 4 | FF | 01 | 0 | 0 | 0 | 0 |

f.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Trace** | **Line** | **Next Line** | **A** | **B** | **N** | **Z** | **V** | **C** |
| 1 | 1 | 2 | 7F | 7F | 0 | 0 | 0 | - |
| 2 | 2 | 3 | 7F | 00 | 0 | 1 | 0 | 1 |
| 3 | 3 | 4 | 7F | 00 | 0 | 0 | 0 | 0 |

1. T = Taken, NT = Not Taken, CBD = Cannot Be Determined

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | BPL | BMI | BNE | BEQ | BVC | BVS | BCC | BCS |
| a | T | NT | NT | T | NT | T | NT | T |
| b | T | NT | T | NT | T | NT | NT | T |
| c | T | NT | T | NT | NT | T | NT | T |
| d | T | NT | T | NT | T | NT | T | NT |
| e | NT | T | T | NT | NT | T | T | NT |
| f | T | NT | T | NT | T | NT | T | NT |
| g | T | NT | T | NT | NT | T | NT | T |
| h | NT | T | T | NT | NT | T | T | NT |
| i | NT | T | T | NT | T | NT | NT | T |
| j | T | NT | T | NT | T | NT | NT | T |
| k | NT | T | T | NT | NT | T | NT | T |

1. 1. %00110000
   2. %10000001
   3. %11111101
   4. %11011111
   5. %11100111
   6. %10100110
   7. %00110100
   8. %10001001
   9. %00001101
   10. %00100101
   11. %11100101
   12. %00011001
   13. %00001100
   14. %10001000
   15. %11010100
   16. %10101100
   17. BSET -$20,X,%00000100
   18. BCLR $20,X,%10110000
   19. BCLR $40,%00011010
   20. BSET $8A,X,%00000111
   21. BRSET $20,X,%00010000,NEXT
   22. BRCLR -$0A,X,%00011000,NEXT
   23. BRSET $33,X,%00011111,NEXT
   24. BRCLR -$1B,X,%11000000,NEXT

1. T = Taken, NT = Not Taken, CBD = Cannot Be Determined

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | BHI | BHS | BLS | BLO | BGT | BGE | BLE | BLT | BNE | BEQ |
| a | T | T | NT | NT | T | T | NT | NT | T | NT |
| b | NT | NT | T | T | T | T | NT | NT | T | NT |
| c | NT | T | T | NT | NT | T | T | NT | NT | T |
| d | NT | NT | T | T | NT | NT | T | T | T | NT |
| e | NT | NT | T | T | NT | NT | T | T | T | NT |
| f | NT | T | T | NT | NT | T | T | NT | NT | T |
| g | T | T | NT | NT | NT | NT | T | T | T | NT |
| h | NT | T | T | NT | NT | T | T | NT | NT | T |