# Exercise 1 Answers

1. 1. 1910
   2. 1310
   3. 14210
   4. 22110
   5. 43110
   6. 34110
   7. -1310
   8. 1510
   9. -8310
   10. 10710
   11. -22510
   12. 21910
2. 1. 010012, 000010012, 0000010012, 0916, 0916,00916
   2. 100112, 000100112, 0000100112, 1316, 1316,01316
   3. Not. Poss. , 001011012, 0001011012, NA, 2D16,02D16
   4. Not. Poss., 010000112, 0010000112, NA, 4316,04316
   5. Not. Poss., 010110002, 0010110002, NA, 5816,05816
   6. Not. Poss., Not Poss., Not Poss., NA, NA,NA
   7. Not. Poss., 011111002, 0011111002, NA, 7C16,07C16
   8. Not. Poss., 110010012, 0110010012, NA, C916,0C916
   9. Not. Poss., Not. Poss., 1001011002, NA, NA,12C16
   10. Not. Poss., Not. Poss., 1100101012, NA, NA,19516
3. 1. 101002c, 111101002c, 1111101002c, 1416, F416,1F416
   2. 101112c, 111101112c, 1111101112c, 1716, F716,1F716
   3. 010112c , 000010112c, 0000010112c, 0B, 0B16,00B16
   4. Not. Poss., 110011102c, 1110011102c, NA, CE16,1CE16
   5. Not. Poss., 100111012c, 1100111012c, NA, 9D16,19D16
   6. Not. Poss., 010011102c, 0010011102c, NA, 4E16,04E16
   7. Not. Poss., Not Poss., 0100000102c, NA, NA,08216
   8. Not. Poss., 011001112c, 0011001112c, NA, 6716,06716
   9. Not. Poss., Not. Poss., 1000101112c, NA, NA,11716
   10. Not. Poss., Not Poss., Not Poss., NA, NA,NA
4. 1. 1B16
   2. 2D16
   3. 3A16
   4. 5316
   5. 7816
   6. B416
   7. D216
   8. EB16
   9. F016
   10. FF16
5. 1. 5-bit unsigned binary
      1. 1010, 010102
      2. 3110, 111112
      3. 1410, 011102
      4. 2310, 101112
   2. 8-bit unsigned binary
      1. 23710, 111011012
      2. 14310, 100011112
      3. 18010, 101101002
      4. 10610, 011010102
   3. 9-bit unsigned binary
      1. 16710, 0101001112
      2. 12110, 0011110012
      3. 25710, 1000000012
      4. 34110, 1010101012
   4. 5-bit signed binary
      1. 1010, 010102c
      2. -610, 110102c
      3. -110, 111112c
      4. 810, 010002c
   5. 8-bit signed binary
      1. -8210, 101011102c
      2. 12710, 011111112c
      3. 9310, 010111012c
      4. -5210, 110011002c
   6. 9-bit signed binary
      1. 17410, 0101011102c
      2. -8210, 1101011102c
      3. 13810, 0100010102c
      4. -110, 1111111112c
   7. 111112C
   8. 011012C
   9. 100112C
   10. 110010112C
   11. 101110002C
   12. 000000002C
   13. 0110110002C
   14. 1000010012C
   15. 100000002C, invalid
   16. Can’t negate unsigned
6. 1. 0000 0000 0000 10012, 000916
   2. 0000 0000 0001 01112, 001716
   3. 1111 1111 1111 01112c, FFF716
   4. 0000 0000 0011 01012, 003516
   5. 0000 0000 0011 01012c, 003516
   6. 0000 0000 1011 00112, 00B316
   7. 1111 1111 0001 00112c, FF1316
   8. 0000 0000 1101 11002c, 00DC16
7. 1. 110112, 000110112, 0000110112
   2. Not Valid , 111001112c, 1111001112c
   3. Not Valid, 101110002c, 1101110002c
   4. Not Valid, Not Valid, 0101000112c
   5. Not Valid, Not Valid, Not Valid
8. 1. 111012, no overflow
   2. 100102, overflow
   3. 101112c, no overflow
   4. 100102c, overflow
   5. 100112c, no overflow
   6. 101112c, overflow
   7. 000001102, overflow
   8. 101100002, no overflow
   9. 100110112c, no overflow
   10. 001101002c, no overflow
   11. 111111102, overflow
   12. 001111102, no overflow
   13. 001111102c, overflow
   14. 111010102c, no overflow
   15. 110000002c, overflow
   16. 111000002c, no overflow
   17. 110101002, no overflow
   18. 010110002, no overflow
   19. 011011112c, no overflow
   20. 111011112c, no overflow