Compiled Problems – Worksheet

1. **02-03 C1 Computer Number Systems**

    Solve for X_2 : $X_2 = 1074_8 + 213_{16}$

2. **02-03 C1 Computer Number Systems**

    What hexadecimal number when increased by 64_{16} equals 532_{16} ?

3. **03-04 C1 Computer Number Systems**

    Convert each expression to binary.
    Ignoring leading zeros, which binary answers contain more 1's than 0's?
    List all of them.

    A. 42_8 B. $3A_{16}$ C. 92_{10} D. 1011_2 E. 214_8

4. **03-04 C1 Computer Number Systems**

    Solve for X_{16}: $X_{16} = 11_2 + 26_8 - 15_{10}$

5. **04-05 C1 Computer Number Systems**

    Given 343_8 and 11101101_2
    Determine   A) which is the larger
                   B) Calculate the positive difference in hexadecimal.

6. **04-05 C1 Computer Number Systems**

    Convert $B2A3_{16}$ to octal.

7. **05-06 C1 Computer Number Systems**

    Convert 473_8 to hexadecimal.

8. **05-06 C1 Computer Number Systems**

    How many more 1's are there in the binary representation of $2F3_{16}$ than in the binary
    representation of $16E_{16}$?

9. **06-07 C1 Computer Number Systems**

   Solve for X_{16}: $100101_2 + X_{16} = 1101101010_2$

10. **06-07 C1 Computer Number Systems**

   Arrange the numbers in order from smallest to largest. Write their letters in that order.

   A) 52_{16} B) 124_8 C) 83_{10} D) 1010001_2

11. **07-08 C1 Computer Number Systems**

   Convert $2A3B4_{16}$ to octal.

12. **07-08 C1 Computer Number Systems**

   Express, in binary, the difference between the largest and smallest numbers:

   206_8, 1111111_2, 84_{16}, 125_{10}

13. **08-09 C1 Computer Number Systems**

   Which is largest?

   76_8, 111100_2, 44_{16}, 101_8, 61_{10}

14. **08-09 C1 Computer Number Systems**

   Add these hex numbers and express the sum in hex.

   $1023F + 2C9A + 8B4 + D5 + E$

15. **09-10 C1 Computer Number Systems**

   Which hexadecimal number has the most 1's when converted to its binary representation?

   234_{16}, $A7_{16}$, $7E_{16}$, 78_{16}, AB_{16}

16. 09-10 C1 Computer Number Systems

Evaluate and express the answer in hex:

$$44_{16} + 222_8 + 1111_2 - 8_{16} - 44_8 - 111_2$$

17. 10-11 C1 Computer Number Systems

Convert to octal: $A2C3E5_{16}$

18. 10-11 C1 Computer Number Systems

Which is the largest?

34_{16}, 63_8, 110110_2, 71_8, 56_{10}

19. 11-12 C1 Computer Number Systems

Which is largest? 243_8 10100110_2 $A8_{16}$ 165_{10}

20. 11-12 C1 Computer Number Systems

Convert to hexadecimal. 4273_8

21. 12-13 C1 Computer Number Systems

Express the difference in hexadecimal: $DEAF_{16}$ - $ACED_{16}$

22. 12-13 C1 Computer Number Systems

Convert to octal: $FACE_{16}$

23. 13-14 C1 Computer Number Systems

Which is the largest?

$F1_{16}$, 375_8, $10F_{16}$, 264_{10}, 11111000_2

24. 13-14 C1 Computer Number Systems

Simplify the following and convert answer to binary.

$$101_2 * 3_{10} + 11_{16} - 52_8 / 6_{10}$$

25. 14-15 C1 Computer Number Systems

Which has the most 1's in its binary representation?

2471_8 $\qquad$ $A62_{16}$ $\qquad$ 1010101010_2 $\qquad$ 452_{10}

26. 14-15 C1 Computer Number Systems

Simplify the following and express the answer as a hexadecimal number.

$$(23_8 + A3_{16})/2_{10}$$

27. 15-16 C1 Computer Number Systems

Which has the most 1's in its binary representation?

414_8 $\qquad$ $1B5_{16}$ $\qquad$ 178_{10} $\qquad$ 200_{16} $\qquad$ 600_8

28. 15-16 C1 Computer Number Systems

Determine the number of 1's in the binary representation of the solution of the following expression:

$$(743_8 - AF_{16} + 110100101000_2) * 256_{10}$$