Binary and Other Number Systems Worksheet

Base 10

Q1: Write what each of the following base 10 numbers means.

(a) 178 =

_____

(b) 351 =

_____

(c) 9605 =

_____

Base 6

Q2: How many digits does base 6 have? What are all the digits? _____

Q3: Write the first ten numbers in base 6:

_____

Q4: Write what each of the following base 6 numbers means.

(a) 11_6 =

_____

(b) 35_6 =

_____

(c) 100_6 =

_____

(d) 541_6 =

_____

Base 4

Q5: How many digits does base 4 have? What are all the digits? _____

Q6: Write the first ten numbers in base 4:

_____

Q7: Write what each of the following base 4 numbers means.

(a) 11_4 = _____

(b) 30_4 = _____

(c) 33_4 = _____

(d) 100_4 = _____

(e) 110_4 = _____

(f) 2301_4 = _____

Binary: Base 2

Q8: How many digits does base 2 have? What are all the digits? _____

Q9: Write the first twenty numbers in base 2:

_____

Q10: Write what each of the following base 2 numbers means.

(a) 101_2 =

_____

(b) 111_2 =

_____

(c) 1000_2 =

_____

(d) 1010_2 =

_____

(e) 10100_2 =

_____

(f) 11101_2 =

_____

Base 12

Q11: How many digits does base 12 have? What are all the digits?

_____

Q12: Write the first twenty numbers in base 12:

_____

Q13: Write what each of the following base 12 numbers means.

(a) $1A_{12}$ = _____

(b) $2B_{12}$ = _____

(c) 170_{12} = _____

(d) $BB8_{12}$ = _____

(e) $ABBA_{12}$ = _____

Challenge

Q14: Convert the following base 10 numbers into binary.

(a) 3   =

_____

(b) 6   =

_____

(c) 11   =

_____

(d) 22   =

_____

(e) 37   =

_____

(f) 158   =

_____

Q15: Convert the following base 10 numbers into base 7.

(a) 3   = _____

(b) 6   = _____

(c) 11 = _____

(d) 22 = _____

(e) 37 = _____

(f) 158 = _____