

HOMEWORK 15

January 31, 2021

I would like to remind you that the homework should be done on a separate piece of paper.

*There is not enough space on this handout to show all work. **You must show all steps!***

1. Convert each number from base-4 to base-10:

a) $3332_4 =$

b) $3013_4 =$

c) $1112_4 =$

d) $1313_4 =$

$4^4 = 256$	$4^3 = 64$	$4^2 = 16$	$4^1 = 4$	$4^0 = 1$

2. Convert each number from base-10 to base-2:

a) $15_{10} =$

b) $75_{10} =$

c) $119_{10} =$

d) $143_{10} =$

$2^7 = 128$	$2^6 = 64$	$2^5 = 32$	$2^4 = 16$	$2^3 = 8$	$2^2 = 4$	$2^1 = 2$	$2^0 = 1$

3. Complete each question by adding numbers in base-4:

a) $331_4 + 23_4 =$

b) $213_4 + 311_4 =$

c) $223_4 + 123_4 =$

d) $312_4 + 111_4 =$

$4^4 = 256$	$4^3 = 64$	$4^2 = 16$	$4^1 = 4$	$4^0 = 1$

4. Convert the numbers from base-10 to base-13:

a) $150_{10} =$

b) $79_{10} =$

c) $456_{10} =$

d) $999_{10} =$

$13^3 = 2,197$	$13^2 = 169$	$13^1 = 13$	$13^0 = 1$

5. What is the value of the expression below in simplest terms? **Do not use a calculator!!! Find a way to simplify.**

$$(20 \times 24 \times 28 \times 32) \div (10 \times 12 \times 14 \times 16) =$$

6. A represents a Natural (counting) number. Find the value of A :

$$\frac{A + A}{A \times A} = \frac{1}{3}$$

Solve the following word problems by writing an equation. Make sure to show all steps!

7. Anita is $4\frac{1}{2}$ years older than Basilio. Three times Anita's age added to six times Basilio's age is 36. Find the age of each person.
8. Tickets to a movie cost \$7.25 for adults and \$5.50 for students. A group of friends purchased 8 tickets for \$52.75. Determine the total number of adult and student tickets.