Math 120 In-Class Practice
Chapter 10 & Chapter 11

Name: Answers

(Put the answers in the boxes on the right)

1. Convert 136_7 to base 10:

1	3	6_7
49	7	1

$1\times49 \quad 3\times7 \quad 6\times1$

$49 + 21 + 6 = 76$

76

2. Convert 112_5 to base 10:

1	1	2
25	5	1

$1\times25 + 1\times5 + 2\times1$

$25+5+2$

32

3. Next, the opposite: Convert 53 to base 7:

1	0	4
49	7	1

How many groups of 49? $\Rightarrow 1$

That leaves $53-49=4$

104_7

4. Convert 23 to base 5:

4	3
5	1

How many groups of 5? $\Rightarrow 4$

That leaves $23-20=3$

43_5

5. Convert 194 to base 5 (use repeated division):

$5\overline{)194}$ R 4, $5\overline{)38}$ R 3, $5\overline{)7}$ R 2, $5\overline{)1}$ R 1

$15\times5=44$, 40

1234_5

1234_5

6. Convert 100 to base 3 (use repeated division):

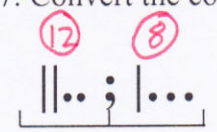
$3\overline{)100}$ R 1, $3\overline{)33}$ R 0, $3\overline{)11}$ R 2, $3\overline{)3}$ R 0, $3\overline{)1}$

$9\times3=10$, 9; $3\times3=03$, 3

10201_3

10201_3

7. Convert the common Mayan number (base 20) to base ten: ||.. ; |...



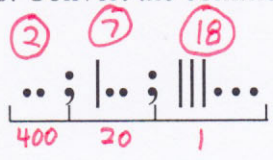
20 1

12×20 8×1

240 + 8 = 248

248

8. Convert the common Mayan number (base 20) to base ten: .. ; |.. ; |||...



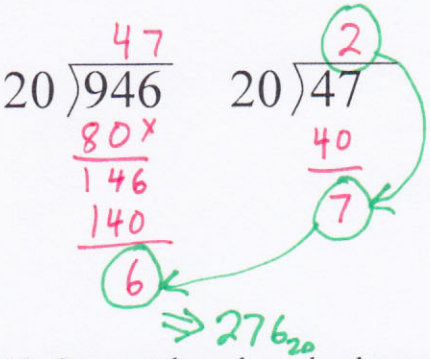
400 20 1

2×400 7×20 18×1

2×400 = 800
7×20 = 140
18×1 =+ 18
958

958

9. Convert 946 to Mayan (Convert to base 20 then convert to Mayan symbols for the answer).



47
20)946
80×
146
140
6

2
20)47
40
7

⇒ 276_{20}

2	7	6
400	20	1

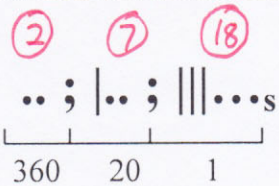
(Base 20)

.. ; |.. ; |.

400 20 1

(Mayan symbols)

10. Convert the solar calendar number to base ten: .. ; |.. ; |||...s



360 20 1

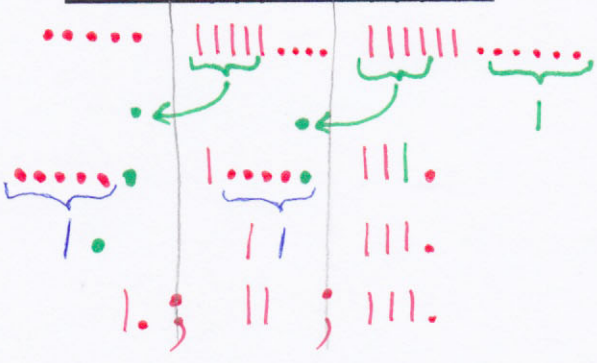
2×360 7×20 18×1

2×360 = 720
7×20 = 140
18×1 =+ 18
878

878

11. Do the following addition:

.. ; || ... ; ||| ...
+ ... ; ||| . ; ||| ...



|. ; || ; |||.

|. ; || ; |||.