

Math 102
Exam #1
Fall 2010

Name:

1. 10 pts. each Convert each to Hindu-Arabic.

(a)

(b) MCMLXXVI

(c) $\overline{\text{DCXXIX}}\overline{\text{CDXLVIII}}$

(d) $\phi \varphi f$

(e) $\psi \delta \sigma \eta$

(f)

(g)

(h)

(i)

(j)

(k)

2. 10 pts. each Convert each number to the indicated numeration system.

(a) 305,492 into Egyptian

(b) 1,492 into Roman

(c) 98,449 into Roman

(d) 777 into Greek

(e) 93,546 into Greek

(f) 638 into Chinese

(g) 7,029 into Chinese

(h) 592 into Babylonian

(i) 8,577 into Babylonian

(j) 335 into Mayan

(k) 1349 into Mayan

3. 10 pts. each Convert each to base-10.

(a) 43_5

(b) 1001010110_2

(c) $7A02_{12}$

(d) 32.35_8

4. 10 pts. each Convert each to the base indicated.

(a) 197 to base-6

(b) 478 to base-12

(c) 5887 to base-16

(d) 73.2 to base-5

(e) $\frac{89}{512}$ to base-8

5. 10 pts. each Perform each calculation in the base indicated.

(a) $405_6 + 542_6$

(b) $4BF3_{16} + 8D29_{16}$

(c) $101101001_2 - 1011101_2$

(d) $4032_{12} - 952_{12}$

(e) $473_8 \times 72_8$

(f) $51B_{16} \times 1A_{16}$

6. 10 pts. each Perform the long division in the base indicated.

(a) $2101_5 \div 22_5$

(b) $403_7 \div 6_7$ (state the answer with a remainder, as in the textbook)

(c) $403_7 \div 6_7$ (state the answer with a bar over the repeating digit)

(d) $4233_8 \div 23_8$ (carry out to 8^{-2} place)

7. 10 pts. each Convert as directed.

(a) 10010110110111_2 to base-16

(b) $4C96_{16}$ to base-2