

Math 123-02
Fall 2024
Dr. Lily Yen

Quiz 2

Show all your work

Name: _____
Number: _____
Signature: _____
Score: ____/15

Problem 1: Convert 7136_8 into binary.

$$111\ 001\ 011\ 110_2 = 3678_{10}$$

Score: /2

Problem 2: Express the Hindu-Arabic numeral 987 in Mayan numeral.

$$\text{Since } 987 = 2 \times (18 \times 20) + 13 \times 20 + 7,$$



Score: /2

Problem 3: Write 9637 as a Kaktovik numeral.

$$\text{Since } 9637 = 1 \times 8000 + 4 \times 400 + 1 \times 20 + 17.$$



Score: /2

Problem 4: Translate MDCXLVII to Hindu-Arabic base-10 numeral.

$$1000 + 500 + 100 + (50 - 10) + 5 + 2 = 1647$$

Score: /2

Problem 5: Translate the following Babylonian numeral to Hindu-Arabic base-10 numeral.



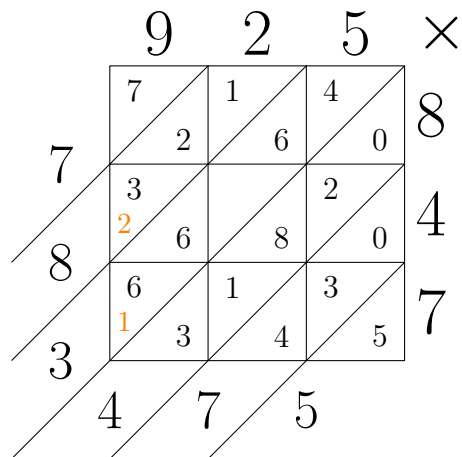
$$46 \times 60^2 + 52 \times 60 + 34 = 168\ 754$$

Score: /2

/10

Problem 6: Multiply 925×847 using the galley method.

783 475



Score: /2

Problem 7: In the Dungeon Theatre of the Dragons, the seats are arranged 8 in a row to the left of the stage and 10 in a row to the right of the stage. Suppose the extended family of Fire Horse gathers to see a show in the Dungeon Theatre; if they all sit on the left of the stage, there are 3 members of the family without a seat. If they all sit on the right of the stage, there are 5 empty seats. Find the first two smallest possible numbers of seats the Dungeon Theatre may have.

Say there are L rows on the left and R rows on the right. Then there are $8L$ seats on the left and $10R$ seats on the right. Therefore the family takes $8L + 3$ seats on the left or $10R - 5$ seats on the right, so $8L + 3 = 10R - 5$, so $8L + 8 = 10R$, so $4(L + 1) = 5R$, so R is divisible by 4.

R	4	8	12	16
L	4	9	14	19
Total	$8L + 10R$	72	152	232 312

Score: /3

/5