

Math 123-02
Fall 2024
Dr. Lily Yen

Quiz Two

Show all your work

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

Problem 1: Convert 5471_8 into binary.

$$101\ 100\ 111\ 001_2 = 2873_{10}$$

Score: /2

Problem 2: Express the Hindu-Arabic numeral 968 in Mayan numeral.

$$\text{Since } 968 = 2 \times (18 \times 20) + 12 \times 20 + 8,$$



Score: /2

Problem 3: Write 9846 as a Kaktovik numeral.

$$\text{Since } 9846 = 1 \times 8000 + 4 \times 400 + 12 \times 20 + 6.$$



Score: /2

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

$$1000 + 500 + 100 + 50 + 10 + (10 - 1) = 1669$$

Score: /2

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



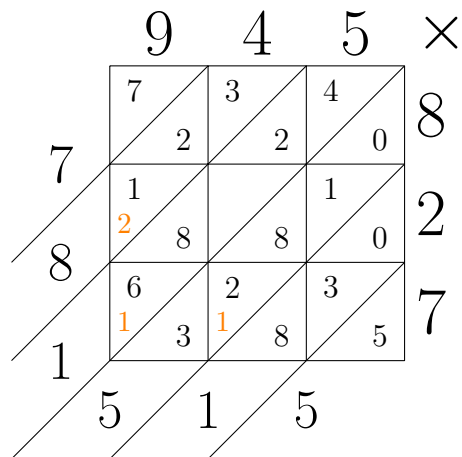
$$43 \times 60^2 + 51 \times 60 + 27 = 157887$$

Score: /2

/10

Problem 6: Multiply 945×827 using the galley method.

781 515



Score: /2

Problem 7: In the Dungeon Theatre of the Dragons, the seats are arranged 6 in a row to the left of the stage and 8 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 5 members of the family without a seat. If they all sit on the right of the stage, there are 7 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 $6L$ seats on the left and $8R$ seats on the right. Therefore the family takes $6L + 5$ seats on the left or $8R - 7$ seats on the right, so $6L + 5 = 8R - 7$, so $6L + 12 = 8R$, so $6(L + 2) = 8R$, so $3(L + 2) = 4R$, so R is divisible by 3.

R	3	6	9	12	
L	2	6	10	14	
Total	$6L + 8R$	36	84	132	180

Score: /3

/5