MthT 430 Projects Chapter 1

1.

OE

Let the set of numbers OE consist of the two objects

$$\{\text{odd}, \text{even}\}$$

Here is a partial addition table:

+ (plus)	odd	even
odd	even	
even		

2. Fill in the rest of the table so that P1–P4 are satisfied for addition.

3. Which element has the role of 0?

4. Describe a mathematical, geometric, or physical model which would use this addition table.

Here is a partial multiplication table:

· (times)	odd	even
odd		
even		

5. Fill in the rest of the table so that P5–P8 are satisfied for multiplication.

6. Which element has the role of 1?

7. Is P9 satisfied?

8. Is it possible to define a positive set P so that P10–P12 are satisfied?

LBN

Let the set of numbers LBN consist of the three objects

$$\{\text{Lincoln}, \text{Blinken}, \text{Nod}\}$$

Here is a partial addition table:

+ (plus)	Lincoln	Blinken	Nod
Lincoln	Blinken		
Blinken			
Nod			Nod

1. Fill in the rest of the table so that P1–P4 are satisfied for addition.

2. Which element has the role of 0?

3. Describe a mathematical, geometric, or physical model which would use this addition table.

Here is a partial multiplication table:

· (times)	Lincoln	Blinken	Nod
Lincoln	Lincoln		
Blinken			
Nod			Nod

4. Fill in the rest of the table so that P5–P8 are satisfied for multiplication.

5. Which element has the role of 1?

6. Is P9 satisfied?

7. Is it possible to define a positive set P so that P10–P12 are satisfied?

ΦΠΣ

Let the set of numbers ΦΠΣ consist of the three objects

$$\{\Phi, \Pi, \Sigma\}$$

Here is a partial addition table:

+ (plus)	Φ	Π	Σ
Φ	Φ		
Π	Π		
Σ	Σ		Π

1. Fill in the rest of the table so that P1–P4 are satisfied for addition.

2. Which element has the role of 0?

3. Describe a mathematical, geometric, or physical model which would use this addition table.

Here is a partial multiplication table:

⋆ (times)	Φ	Π	Σ
Φ	Σ		
Π	Φ	Π	
Σ	Π		Φ

4. Fill in the rest of the table so that P5–P8 are satisfied for multiplication.

5. Which element has the role of 1?

6. Is P9 satisfied?

7. Is it possible to define a positive set P so that P10–P12 are satisfied?