

# Exponential Notation Ethics in Business

# Exponential Notation

Some numbers are very large; some are very small

- $G = 0.0000000000667384 \text{ m}^3 \text{ kg}^{-1} \text{ sec}^{-2}$
- $A = 6022140760000000000000000000$
- Ways to shuffle a deck of cards:  
8065817517094387857166063685640376697528950  
5440883277824000000000000000



# Exponential Notation

There is a better way to handle these numbers!

- $A \cdot 10^e$
- Count the number of places the decimal has to be moved to get  $1 \leq A < 10$ . Call that  $e$
- Shift the decimal place so  $1 \leq A < 10$
- You have:  $A \cdot 10^e$

# Exponential Notation

- $G = 0.0000000000667384 \text{ m}^3 \text{ kg}^{-1} \text{ sec}^{-2} = 6.67384 * 10^{-11} \text{ m}^3 \text{ kg}^{-1} \text{ sec}^{-2}$
- $A = 6022140760000000000000000 = 6.02213076 * 10^{23}$
- Ways to shuffle a deck of cards:  
8065817517094387857166063685640376697528950544088327782  
4000000000000 or  
8.065817517094387857166063685640376697528950544088327782  
 $4 * 10^{67}$
- Let's round that last to  $8.066 * 10^{67}$



# Exponential Notation

## Arithmetic using Exponential Notation

- $A \cdot 10^a$  times  $B \cdot 10^b$  is  $A \cdot B \cdot 10^{a+b}$  but if  $A \cdot B \geq 10$ , adjust the decimal to get it between 1 & 10 and adjust the exponent
- $A \cdot 10^a$  divided by  $B \cdot 10^b$  is  $(A/B) \cdot 10^{a-b}$  but if  $A \cdot B \leq 10$ , adjust the decimal to get it between 1 & 10 and adjust the exponent
- $5.0 \cdot 10^4 \cdot 3.1 \cdot 10^3 = 15.5 \cdot 10^7 = 1.55 \cdot 10^8$
- $4.8 \cdot 10^2 \cdot 6.0 \cdot 10^{-2} = 14.4 \cdot 10^0 = 1.44 \cdot 10^1$
- $4.8 \cdot 10^2 / 6.0 \cdot 10^{-2} = 0.4 \cdot 10^4 = 4.0 \cdot 10^3$
- $4.0 \cdot 10^5 / 2.0 \cdot 10^2 = 2.0 \cdot 10^3$

# Exponential Notation

To add or subtract two numbers in exponential notation, you must first adjust the numbers so they have the same exponent on 10. You then do the adding or subtracting, followed by returning the numbers to standard exponential notation format

- $4.5 \cdot 10^3 + 2.4 \cdot 10^4 = 4.5 \cdot 10^3 + 24.0 \cdot 10^3 = 28.5 \cdot 10^3 = 2.85 \cdot 10^4$
- $1.85 \cdot 10^6 + 4.21 \cdot 10^2 = 18500 \cdot 10^2 + 4.21 \cdot 10^2 = 18504.21 \cdot 10^2 = 1.850321 \cdot 10^2$
- $3.75 \cdot 10^3 - 1.42 \cdot 10^2 = 37.5 \cdot 10^2 - 1.42 \cdot 10^2 = 36.08 \cdot 10^2 = 3.608 \cdot 10^3$
- $4.11 \cdot 10^6 - 3.56 \cdot 10^7 = 4.11 \cdot 10^6 - 35.6 \cdot 10^6 = -31.49 \cdot 10^6 = -3.149 \cdot 10^7$
- $6.67384 \times 10^{-11} + 6.02214076 \times 10^{23} =$   
 $60221407600000000000000000 + 0.0000000000667384 =$   
 $60221407600000000000000000.0000000000667384$   
 $\sim 6.02214076 \times 10^{23}$



## Business Ethics

In the reading assignment, there are numerous Scriptures quoted that are considered significant in terms of business ethics.

These need read with prayer and meditation, to guide you in how you run your business

Note that the principles in these verses also apply to how you should interact with businesses, even if you do not own one.

## Business Ethics

How I conduct my business reflects:

- On my faith in God
- On God
- On me



# Business Ethics

In conducting business, I need to:

- Use honest, generous measurements
- Pay honest and generous wages to my employees, and pay them in a timely manner
- Give honest prices and estimates for offered goods and services
- Deal with small purchases or accounts with the same respect and fairness as the largest ones
- Produce the highest quality goods and services to my fullest ability

# Business Ethics

In conducting business, I need to:

- Provide promised goods and services in a timely manner
- Pay bills promptly—at least by the due date, and preferably somewhat before
- If I have competition, speak charitably of my competitors: speak truth, but in as kindly a way as possible
- As an employee, I need to give full effort to my job, minimally wasting the employer's resources, which includes the time for which I am paid



## Business Ethics

In summary:

Scripture says that I should conduct business with others the way I would want others to conduct business with me