

Name _____

Date _____

I. Fibonacci Sequence

The first 15 numbers in the Fibonacci Sequence are 0,1,1,2,3,5,8,13,21,34,55,89,144,233, 377...

What are the next two numbers in the sequence? _____, _____

II. Derivation of Phi

Fibonacci Sequence:

0,1,1,2,3,5,8,13,21,34,55,89,144,233,377,....

Calculate the Fibonacci Ratios starting with the ratio 13/8. Continue until you have filled all of the blanks.

- a. $13/8 = 1.625$
- b. $21/ \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$
- c. $34/ \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$
- d. $55/ \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$
- e. $89/ \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$
- f. $144/ \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$
- g. $233/ \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$
- h. $377/ \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

Approximation of the Golden Ratio: 1.618033989.....

III. Total Body Height to Navel Height

The purpose of this activity is to determine the ratio of total body height to navel height. Read the instructions carefully. Work in pairs. Each person must complete one of these data sheets.

1. Obtain two meter sticks and 3 Post-it Notes.
2. One partner will determine the total body height and navel height of the partner.
3. *Partner being measured:* Take off your shoes. Stand upright with your back against a wall. Put your feet together.
4. *Partner taking measurements:* Place the meter stick on top of your partner's head to help you determine your partner's height. Make sure the meter stick is level with the floor. Mark your partner's height on the wall with a Post-it Note. Determine your partner's total body height by measuring the distance from the floor to the Post-it Note. (Use a second Post-it Note for the 1-

meter mark.) Record your partner's name in space 1 and his/her total body height (to one decimal place) in space 2.

5. *Partner being measured:* Continue standing upright. Face the wall. Point to your navel with a pen/pencil. Keep the pen/pencil horizontal with the floor and mark your navel height with the third Post-it Note.

6. *Partner taking measurements:* Measure the distance from the floor to the Post-it Note indicating your partner's navel height. Record the height of your partner's navel in space 3 to one decimal place.

7. Trade roles and repeat steps 1-6. Fill in spaces 4-6.

Table 1: Total Body Height/Navel Height

Name of Partner	Total Body Height	Navel Height	Ratio of <u>Total Body Height</u> Navel Height	Ratio of Total Body Height/Navel Height in Decimal Form
1.	2. cm	3. cm	_____ cm cm	
4.	5. cm	6. cm	_____ cm cm	

8. *Total Body Height/Navel Height* is the ratio of total body height to navel height. Complete the *Total Body Height/Navel Height* column in the table by filling in the body heights and navel heights.

9. Using your calculator, divide *Total Body Height* by *Navel Height* and report your answer to 3 decimal places.