Name:\_\_\_Key\_\_\_\_\_ Microscope Calculations Practice Date:\_\_\_\_\_\_\_\_\_\_\_

1. 15 cells are observed across the centre of the high power field. How long is each cell?

***Approx. 450/15 = 30****μm*

*Each cell is approximately 30μm.*

1. A cell is observed under high power to be about half the field diameter. A student draws the cell 250mm in length. What is the magnification of the drawing?

***Actual Size = 450μm /2***

***= 225****μm*

*M=D/A*

*= 250000μm/225μm*

*= 1111.1111X! The magnification of the drawing is 1111X.*

1. A student draws a cell diagram 24mm long. She writes 400X below the diagram. How large is the actual cell?

**M=D/A**

**400X=24mm/A**

**A = 24m/400X**

**= 0.06mm**

**Or 60***μm The actual size of the cell is 60μm.*

1. A cell is 80 μm in length. If drawn 600 times actual size, how long will the drawing be in mm?

**D=MA**

**= 600X(80***μm)*

**= 48000***μm*

**= 48mm**

**The drawing will be 48mm long**

1. 5 onion cells are counted across the centre of the high power field. One cell is drawn 18mm long. Calculate the drawing magnification.

***Actual size = 450****μm* ***/5***

***= 90****μm*

***M=D/A***

***= 18000****μm/90μm*

***= 200X***

The onion cells are drawn at 200X the actual size.

1. 40 potato cells are counted across the centre of the medium field of view. One cell is drawn 20mm long. What is the drawing magnification?

***Actual size = 1800****μm/40*

***= 45****μm*

***M=D/A***

***= 20000****μm/45μm*

***= 444.444X***

***The drawing magnification is 444.44X.***

1. The diameter of a fine hair is estimated to be one tenth of the diameter of the high power field. It is drawn 40mm wide by a student. What is the drawing magnification?

*Actual Size = 1/10 x 450μm*

*= 45μm*

*M = D/A*

*= 40000μm/45μm*

*= 888.888X*

*The drawing magnification is 888.888X*