CALCULUS JOURNAL
AREA & VOLUME

1. When finding the area between a single curve and the *x*-axis, regions located_____ must be subtracted.

2. Function *k* is above the *x*-axis and function *m* is below the *x*-axis, the area between the functions would be calculated by _____ .

3. Functions *p* and *q* are both located below the *x*-axis with *q* higher than *p*. The area between the two curves would be calculated by _____ .

4. When the orientation of the rectangle is vertical, the functions will be subtracted in the order _____ , but when the orientation of the rectangle is horizontal, the functions will be subtracted in the order _____ .

5. When the orientation of the rectangle is horizontal, the problem will be expressed as ____ = ____ , while the problem will be expressed as ____ = ____ when the orientation of the rectangle is vertical.

6. (a) When using the disk method to calculate the volume of an area revolved around a vertical line other than the *y*-axis, you can determine whether to subtract the curve minus the line or the line minus the curve using _____ .

   (b) If the region is revolved around a horizontal line other than the *x*-axis, the equations should be subtracted in the order _____ .

7. The shell method is to be used to calculate the volume of an area revolved around a line other than the *x*- or *y*-axis. If the rectangle has vertical orientation, the height of the cylindrical shell will be calculated by subtracting _____ while the radius will be calculated by subtracting _____ .

8. (a) When calculating volume by slicing, the region enclosed by the given equations forms the _____ of the solid and the slices are positioned _____ .

   (b) The theory of calculating volume by slicing works by calculating the volume of _____ and _____ the volume of all of the slices using _____ .

9. Describe a real-world situation where someone might need to know each of the following. Examples cannot be shapes that can be solved with known geometric area and volume formulas.:

   Area of a curved region _____

   Volume of a solid of revolution _____

   Surface area of a solid of revolution _____

10. List the following rules, facts, or formulas.
    a) Formula for the disk method, orientation of the rectangle

b) Formula for the shell method, orientation of the rectangle

c) Formula for finding volume of a solid by slicing

d) Area formulas for finding volume by slicing with the given cross section:

Square _____

Right triangle _____

Equilateral triangle _____

Semicircle _____

e) Formula for calculating length of a curve

f) Formula for calculating surface area of a solid of revolution