Weekly Assignment – Ways to Find the Area Under a Curave Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Given functions *f* and *g* represented by the graphs belowChart, line chart

   Description automatically generated

Find the following

1. For each of the following, find the area under *f* over the indicated interval:
   1. on the interval [0, 2]
   2. on the interval [1,2]
   3. on the interval [1, 4]
   4. on the interval [1,3]
2. We wish to use Riemann sums to find the area under the curve from *x = -1* to *x = 5* using the Midpoint Rule with 3 divisions.
3. Sketch the graph *y = f(x)* and draw the rectangles you will use to approximate the area labeling *(x,y)* at the RHS of each division as well as and.
4. Fill in the following table numerically

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Division | *x-*value used | Width | Height | Area |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |

1. Fill in the same table using and

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Division | *x-*value used | Width | Height | Area |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |

1. Express athe approximation of the total area as a numeric sum.
2. Express athe approximation of the total area as a symbolic sum.
3. Convert the symbolic sum in part e to a Riemann Sum in the form

1. Take the appropriate limit of the Riemann sum that will convert to the precise area in the form and evaluate the integral to find the precise area.