Calculus
Chapter 5 – Final Review

*Learning Target: I can estimate the area under a curve using the sum of right- or left-hand rectangles.*

Find the upper and lower sums for the region described using n rectangles.

1) The region bounded by the graph of $f(x)=x^2$ and the x-axis between x=0 and x=2.

2) The region bounded by the graph of $f(x)=8-x^3$ and the x-axis between x=0 and x=2.

Approximate the area of the region described using the given number of subintervals (of equal width).

3) The region bounded by the graph of $f(x)=\sqrt{x}$ and the x-axis between x=0 and x=2 using 4 right-hand endpoint rectangles.

4) The region bounded by the graph of $f(x)=\sqrt{1-x^2}$ and the x-axis between x=0 and x=1 using 8 left-hand endpoint rectangles.

5) The region bounded by the graph of $f(x)=\frac{1}{x}$ and the x-axis between x=1 and x=2 using 5 right-hand endpoint rectangles.

*Learning Target: I can use integration to find area under the curve.*

Find the area under the curve using the appropriate definite integral.

1) $f(x)=\sqrt{x},\ [0,4]$

2) $f(x)=4\cos \pi x,\ \left[0,\frac{1}{2}\right]$

3) $f(x)=\frac{5}{x^2+1},\ [0,3]$

4) $f(x)=x-x^2$ in Q1

5) $f(x)=(3-x)\sqrt{x}$ in Q1

6) $f(x)=1+\sqrt[3]{x}$ bounded by $x=0, x=8, y=0$