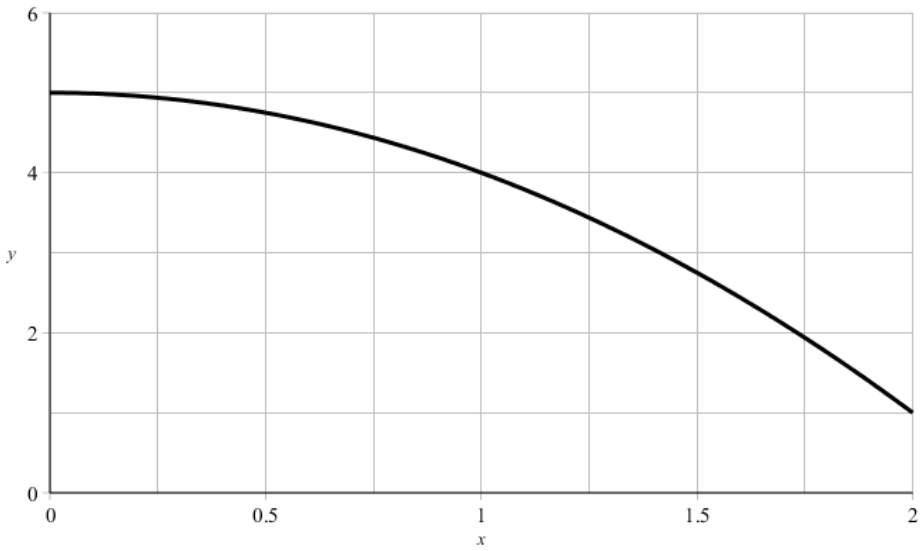
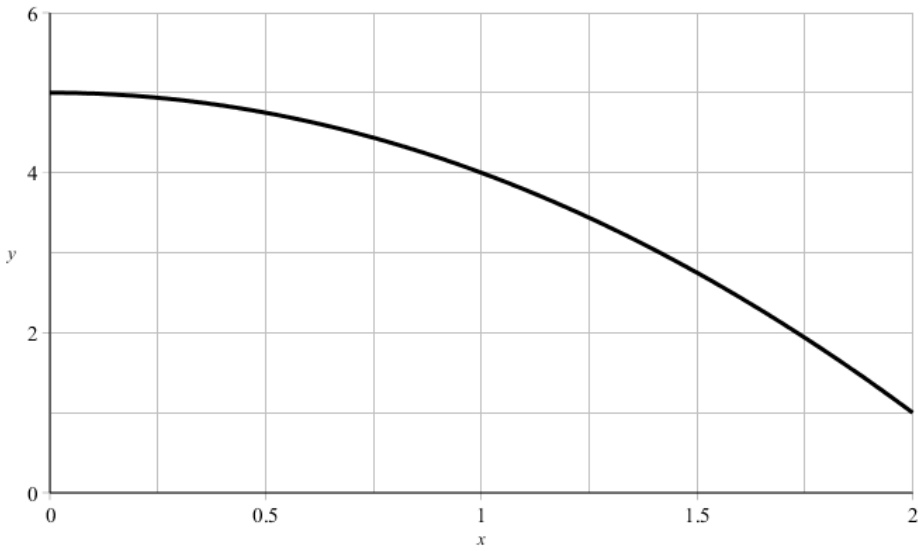
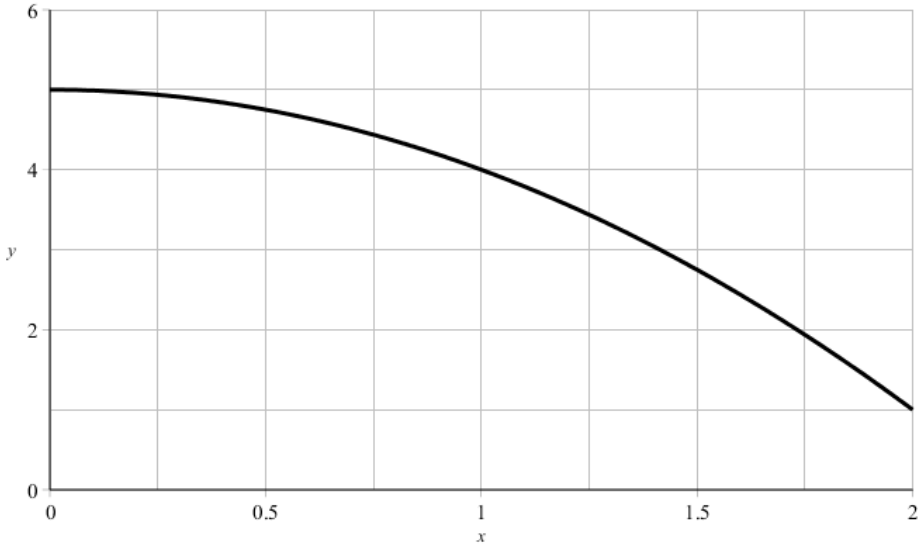
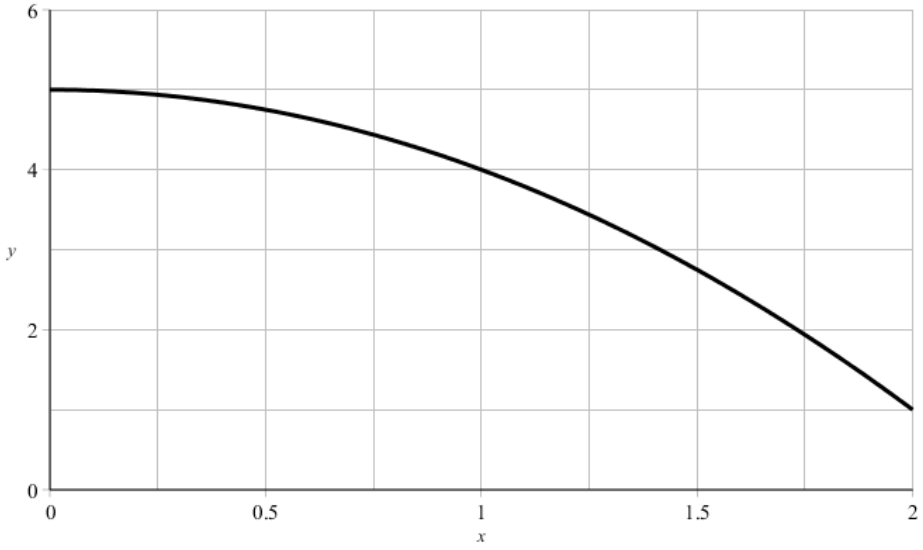
**Estimate the area under the curve $f(x) = 5 - x^2$ and above the x-axis on the interval [0,2]:**





## Estimate the area under the curve $f(x) = 5 - x^2$ and above the x-axis on the interval [0,2]:



1. Use **4** rectangles and the ***right endpoints*** of each subinterval to find the height.

2. Use **4** rectangles and the ***left endpoints*** of each subinterval to find the height.

3. Use **4** rectangles and ***midpoints*** of each subinterval to find the height.

4. Use **8** rectangles and the ***right endpoints*** of each subinterval to find the height.

| **number of rectangles n** | ***Area Estimates*** | | |
|---|---|---|---|
| | **Right endpoint estimate** | **Left endpoint estimate** | **Midpoint Estimate** |
| 4 | | | |
| 8 | | | 7.3438 |
| 16 | 7.0781 | 7.5781 | 7.3359 |
| 100 | 7.2932 | 7.3732 | 7.3334 |
| 1000 | 7.3293 | 7.3373 | 7.3333 |
| 10000 | 7.3329 | 7.3337 | 7.3333 |

What do you think the ***exact*** area is?