

## Worksheet--Simpson's Rule

1. Approximate  $\int_0^2 x^2 dx$  using Simpson's Rule if  $n = 4$ . Then find the exact value.

$$\frac{8}{3} = 2.667$$

$$\frac{8}{3}$$

2. Approximate  $\int_4^9 \sqrt{x} dx$  using Simpson's Rule if  $n = 8$ . Then find the exact value.

$$12.667$$

$$\frac{38}{3}$$

3. Approximate  $\int_0^{\frac{\pi}{4}} x \tan x dx$  using Simpson's Rule if  $n = 4$ .

$$0.186$$

4. The table lists several measurements gathered in an experiment to approximate an unknown continuous function  $y = f(x)$ . Approximate the integral  $\int_0^2 f(x) dx$  using Simpson's Rule.

X	Y
0.00	4.32
0.25	4.36
0.50	4.58
0.75	5.79
1.00	6.14
1.25	7.25
1.50	7.64
1.75	8.08
2.00	8.14

$$12.592$$