Practice worksheet | Integration

Numerical area approximation and the integral idea

Name: _____ Date: _____

6 questions | 18 marks

1. For $y = x^2$ on $[0, 2]$, use two right rectangles. [3 marks]

2. For $y = x^2$ on $[0, 2]$, use midpoint rectangles of width 1. [3 marks]

3. For $y = x^2$ on $[0, 2]$, use four trapeziums. [3 marks]

4. A rate is 4,6 and 10 L/min at 0,2 and 4 min. Estimate total volume by trapeziums. [3 marks]

5. The function $f(x) = 2x + 1$ is sampled at 0,1 and 2. Is the trapezium estimate exact? Explain. [3 marks]

6. Why does the trapezium rule overestimate $\int_0^2 x^2\,dx$? [3 marks]