

Lab 4

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Question 1:

(a) $1 / (1/4) = 4$

(b) $10 \times 4 = 40$

(c) $O(k)$

Question 2:

$$\int_1^n 1/x(dx) = \log n - \log 1 = \log n$$

Question 3:

$$S = 1/2 + 2/4 + 3/8 + 4/16 + 5/32 + \dots$$

$$S/2 = 1/4 + 2/8 + 3/16 + 4/32 + \dots$$

$$S - S/2 = 1/2 + 1/4 + 1/8 + 1/16 + 1/32 + \dots$$

In this case: $1/2 + 1/4 + 1/8 + 1/16 + 1/32 + \dots = 1$, if $n \rightarrow \infty$

$$S - S/2 = 1$$

$$S(1 - 1/2) = 1$$

$$S \times 1/2 = 1$$

$$S = 2$$