MA 16010 LESSON 34: NUMERICAL INTEGRATION
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EX 1: (When given an integral,) Use the Trapezoid Rule to approximate _____ using $n =$ _____.

Solution: (1) First calculate Δx.

a = _____

b = _____

$b - a$ = _____

$\Delta x = \dfrac{b-a}{n}$ = _____

(2) Determine what $f(x)$ is.

Hence $f(x) =$ _____

(3) Find the following values:

x_0	= _____	$f(x_0)$	= _____	$f(x_0)$	= _____
x_1	= _____	$f(x_1)$	= _____	$2 \cdot f(x_1)$	= _____
x_2	= _____	$f(x_2)$	= _____	$2 \cdot f(x_2)$	= _____
x_3	= _____	$f(x_3)$	= _____	$f(x_3)$	= _____

(4) Sum all the values in the black box. = _____

(5) Multiply the value found in (4), Δx found in (1), and 1/2, which yields our answer.

_____

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EX 2: (When given a picture,) Approximate the area of the shaded region by using the Trapezoid Rule with $n =$ _____

Solution: (1) First calculate Δx.

a = _____

b = _____

$b - a$ = _____

$\Delta x = \dfrac{b-a}{n}$ = _____

(2) Find the following values:

x_0	= _____	$f(x_0)$	= _____	$f(x_0)$	= _____
x_1	= _____	$f(x_1)$	= _____	$2 \cdot f(x_1)$	= _____
x_2	= _____	$f(x_2)$	= _____	$2 \cdot f(x_2)$	= _____
x_3	= _____	$f(x_3)$	= _____	$f(x_3)$	= _____

(3) Sum all the values in the black box. = _____

(4) Multiply the value found in (3), Δx found in (1), and 1/2, which yields our answer.

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