



$$f(x,y) = 2x + 4y$$

POINT	$f(x_i, y_i)$
$(\frac{1}{2}, \frac{1}{2})$	$2(\frac{1}{2}) + 4(\frac{1}{2}) = 3$

$(\frac{3}{2}, \frac{1}{2})$	$2(\frac{3}{2}) + 4(\frac{1}{2}) = 5$
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$(\frac{5}{2}, \frac{1}{2})$	$2(\frac{5}{2}) + 4(\frac{1}{2}) = 7$
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$(\frac{7}{2}, \frac{1}{2})$	$2(\frac{7}{2}) + 4(\frac{1}{2}) = 9$
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POINT	$f(x_i, y_i)$
$(\frac{1}{2}, \frac{3}{2})$	$2(\frac{1}{2}) + 4(\frac{3}{2}) = 7$

$(\frac{3}{2}, \frac{3}{2})$	$2(\frac{3}{2}) + 4(\frac{3}{2}) = 9$
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$(\frac{5}{2}, \frac{3}{2})$	$2(\frac{5}{2}) + 4(\frac{3}{2}) = 11$
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$(\frac{7}{2}, \frac{3}{2})$	$2(\frac{7}{2}) + 4(\frac{3}{2}) = 13$
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$$\text{AREA} = 1(1) = 1$$

$$\sum_{i=1}^8 f(x_i, y_i) \Delta A = 3(1) + 5(1) + 7(1) + 9(1) + 7(1) + 9(1) + 11(1) + 13(1)$$

$$= 3 + 5 + 7 + 9 + 7 + 9 + 11 + 13$$

$$= \boxed{64}$$

$$\int_{x=0}^{x=4} \int_{y=0}^{y=2} (2x + 4y) dy dx$$

$$= \int_{x=0}^{x=4} [2xy + 4 \cdot \frac{1}{2} y^2]_{y=0}^{y=2} dx$$

$$= \int_{x=0}^{x=4} [2xy + 2y^2]_{y=0}^{y=2} dx$$

$$= \int_{x=0}^{x=4} [2x(2) + 2(2)^2 - (2x(0) + 2(0)^2)] dx$$

$$= \int_{x=0}^{x=4} (4x + 8) dx$$

$$= \left[4 \cdot \frac{1}{2} x^2 + 8x \right]_{x=0}^{x=4}$$

$$= \left[2x^2 + 8x \right]_{x=0}^{x=4}$$

$$= 2(4)^2 + 8(4) - (2(0)^2 + 8(0))$$

$$= 32 + 32$$

$$= \boxed{64}$$