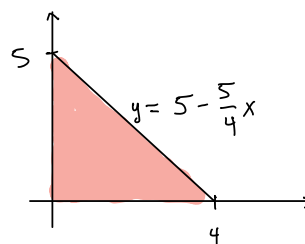


$$\begin{aligned}
 1. \quad \iint_D (2x + 4y) dA &= \int_{-\pi/2}^{\pi/2} \int_1^5 2r^2 (\cos\theta + 2\sin\theta) dr d\theta \\
 &= \int_{-\pi/2}^{\pi/2} (\cos\theta + 2\sin\theta) \int_1^5 2r^2 dr d\theta \\
 &= \frac{2}{3} \left[ r^3 \right]_1^5 \int_{-\pi/2}^{\pi/2} (\cos\theta + 2\sin\theta) d\theta \\
 &= \frac{2}{3} (124) \left[ \sin\theta - 2\cos\theta \right]_{-\pi/2}^{\pi/2} \\
 &= \frac{248}{3} [(1-0) - (-1-0)] = \boxed{\frac{496}{3}}
 \end{aligned}$$

$$\begin{aligned}
 2. \quad \int_0^4 \int_0^{5-\frac{5}{4}x} 3x^2 dy dx &= 3 \int_0^4 x^2 (5 - \frac{5}{4}x) dx \\
 &= 3 \left[ \frac{5}{3}x^3 - \frac{5}{16}x^4 \right]_0^4 \\
 &= 3 \left( \frac{320}{3} - 80 \right) \\
 &= \boxed{80}
 \end{aligned}$$



$$3. \quad \int_0^3 \int_0^{50} \int_0^{\sqrt{z/2}} f(x,y,z) dy dz dx$$

