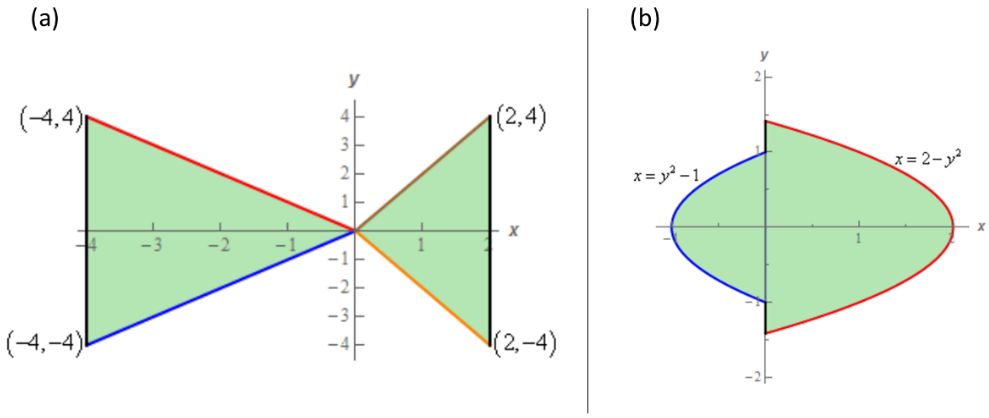
1. Compute $\iint_R 2xy - x^2 + 1\, dA$ over $R = [2,3] \times [-1,1]$ in the order given below.
   (a) Integrate with respect to x first then y.
   (b) Integrate with respect to y first then x.
2. Integrate each of the following:
   (a) $\iint_R y^5 - x^2 e^y\, dA,\ \ R = [-1,2] \times [0,4]$
   (b) $\iint_R \frac{\ln(4xy)}{xy}\, dA,\ \ R = [1,2] \times [3,4]$
   (c) $\iint_D 12x^2y - y^2\, dA,\ \ D = \{(x,y) | -2 \leqslant x \leqslant 2, -x^2 \leqslant y \leqslant x^2\}$
   (d) $\iint_D 7y^3 e^{x^2+1}\, dA$ where D is the region bounded by $y = 2\sqrt[4]{x}, x = 9$ and the x-axis
   (e) $\iint_D 9 - \frac{6y^2}{x^2}\, dA$ where D is the region in the first quadrant bounded by $y = x^3$ and $y = 4x$.
3. Integrate the following functions over their corresponding regions



   (a) $f(x,y) = xy - y^2$
   (b) $f(x,y) = 6y^2 + 10yx^4$
4. Evaluate $\iint_D xy - y^3\, dA$ where D is the region bounded by $y = x^2, y = -x^2$, and $x = 2$ in the order given below
   (a) Integrate with respect to x first then y.
   (b) Integrate with respect to y first then x.
5. Determine the region we would get by applying the given transformation T to region R for each below.
   (a) R: region inside $\frac{x^2}{25} - 49y^2 = 1, T : x = 5u, y = \frac{1}{7}v$
   (b) R: region bounded by $xy = 4, xy = 10, y = x, y = 6x, T : x = 2\sqrt{\frac{u}{v}}, y = 4\sqrt{uv}$
6. Evaluate the following integrals using the given transformation.
   (a) $\iint_R \frac{15y}{x}\, dA$ where R is the region bounded by $xy = 2, xy = 6, y = 4, y = 10$ using the transformation $x = v, y = \frac{2u}{3v}$
   (b) $\iint_R 2y - 8x\, dA$ where R is the parallelogram with verticies $(6,0), (8,4), (6,8), (4,4)$ using the transformation $x = \frac{1}{4}(u - v), y = \frac{1}{2}(u + v)$