

3. (2ea) Sketch the the natural domain of the following functions. Use solid lines for the portions of the boundary included in the domain, and dashed lines for portions not included.

(a) $f(x, y) = \log \left(\frac{x^2 + y^2}{y^2 - x^2} \right)$

(b) $f(x, y) = \sqrt{1 - |x| - |y|}$

4. (3) Which two of the following points are closest together?

$$P_1 = (2, 4, 5) \quad P_2 = (-8, 1, -4) \quad P_3 = (8, -6, -3)$$

5. (1ea) Given the following table of values for the function $f(x, y)$, determine the quantities below.

$x \setminus y$	-2	-1	0	2	3
-2	16	-3	-3	-10	2
0	0	9	20	18	-5
1	28	27	4	-6	23
2	-13	21	-11	7	1
3	-9	11	-11	9	2

(a) $f(0, 0)$

(b) $f(2, 3)$

(c) $f(-2, -1)$