

$$\begin{array}{l} x:y\mathfrak{I} = x^n y^n (ax + by - c) \\ \max (ab)^n / c < 0 \min (ab)^n / c > 0 \end{array}$$

$$\begin{array}{l} x\mathfrak{I} = x^{n-1} y^n ((n+1)ax + nby - nc) = 0: \quad y\mathfrak{I} = x^n y^{n-1} (nax + (n+1)by - nc) = 0 \\ (n+1)ax + nby - nc = 0 = nax + (n+1)by - nc \Rightarrow (n+1)ax + nby = 0 = nax + (n+1)by \Rightarrow ax = by \\ (2n+1)ax = nc = (2n+1)by \Rightarrow x = \frac{n}{2n+1} \frac{c}{a}: \quad y = \frac{n}{2n+1} \frac{c}{b} \\ xx\mathfrak{I} = nx^{n-2} y^n ((n+1)ax + (n-1)by - (n-1)c) \stackrel{\text{crit}}{=} nx^{n-2} y^n (2nax - (n-1)c) = nx^{n-2} y^n (c - ax) \\ yy\mathfrak{I} = nx^n y^{n-2} ((n-1)ax + (n+1)by - (n-1)c) \stackrel{\text{crit}}{=} nx^n y^{n-2} (2nax - (n-1)c) = nx^n y^{n-2} (c - ax) \\ xy\mathfrak{I} = nx^{n-1} y^{n-1} ((n+1)ax + (n+1)by - nc) \stackrel{\text{crit}}{=} nx^{n-1} y^{n-1} ((2n+2)ax - nc) = nx^{n-1} y^{n-1} ax = yx\mathfrak{I} \\ \frac{xx\mathfrak{I}}{yx\mathfrak{I}} \Big| \frac{xy\mathfrak{I}}{yy\mathfrak{I}} = \frac{nx^{n-2} y^n (c - ax)}{nx^{n-1} y^{n-1} ax} \Big| \frac{nx^{n-1} y^{n-1} ax}{nx^n y^{n-2} (c - ax)} \\ = nx^{n-2} y^n (c - ax) nx^n y^{n-2} (c - ax) - nx^{n-1} y^{n-1} ax nx^{n-1} y^{n-1} ax \\ = n^2 x^{2n-2} y^{2n-2} (c^2 - 2acx + a^2 x^2 - a^2 x^2) = n^2 x^{2n-2} y^{2n-2} c (c - 2ax) \\ = n^2 x^{2n-2} y^{2n-2} c \left(c - \frac{2n}{2n+1} c \right) = \frac{n^2}{2n+1} \overbrace{x^{n-1} y^{n-1} c}^2 > 0 \\ xx\mathfrak{I} + yy\mathfrak{I} = (n+1) (a^2 + b^2) \left(\frac{n}{2n+1} \right)^{2n-1} \frac{c^{2n-1}}{a^n b^n} \end{array}$$

$$\begin{array}{l} 6x^2 - 2x - 3xy + y^2 + 5y: \quad x^2 + 2xy - 4x + 8y: \quad x^2 - xy + y^2 - 2x: \quad xy + y^2 x \\ 2x + 6y - x^2 - y^2: \quad xy - x^2 - y^2 - 3x + 2y + 1 \\ y^3 + y + 4xy - 2x^2: \quad x^3 + y^2 - 6xy: \quad 2y^3 - (x^2 + y^2)^2: \quad x^3 + 8y^3 - 6xy + 5: \quad 2x^3 + 4x^2 + y^2 - 2xy \\ x^2 - xy + y\mathfrak{e}: \quad 1 + x^2 - y^2\mathfrak{e}: \quad -2x^2 - y^2\mathfrak{e}y: \quad (x^2 + y)^{x/2}\mathfrak{e}: \quad (2x + y^2)^x\mathfrak{e} \\ (8x^2 - 6xy + 3y^2)^{2x+3y}\mathfrak{e}: \quad (x^2 - 2y^2)^{x-y}\mathfrak{e} \\ x^2 - xy + y^2 - 2x + y: \quad \min_{1;0} = -1 \end{array}$$

$$(x^2 - 2y)^{x-y} \mathfrak{e}: \quad \min_{1:3/2} = -2/\sqrt{e}$$

$$x^3 + 2xy - 5y^2 + 2: \quad \max_{-2/15: -2/75} = 6754/3357$$

$$y\sqrt{x} - y^2 - x + 6y$$

$$x^3 + y^2 - 6xy - 48x: \quad \min_{8:24} = -448$$

$$y^3 - 8xy - 4y + 8x^2: \quad \min_{1:2} = -8$$

$$3x^3 + 3x^2y - y^3 - 15x: \quad \min_{\sqrt{5}: -\sqrt{5}} = -20\sqrt{5}: \quad \max_{-\sqrt{5}: \sqrt{5}} = 20\sqrt{5}$$

$$3x^2 + 3y^2 - 4xy - 3x - 2y + 1: \quad \min_{13/10:6/5} = -43/20$$

$$x^4 + y^4 - x^2 - 2xy - y^2: \quad \min_{1:1}^{-1: -1} = -2: \quad \text{sad}_{0:0}$$

$$3x^2 - x\sqrt{y} + y - 8x + 8: \quad \min_{16/11:64/121} = -43/20$$

$$x^3 + 3x^2y - 15x - 12y: \quad \text{none}$$

$$x^2 - xy + 2y^2 - x + 4y - 5: \quad \min \ (0: -1) = -7$$

$$\frac{x^2}{4} + \frac{y^2}{4} - \frac{xy}{3} \frac{x}{4} - \frac{y}{6} + 1$$

$$x^2 + y^2 - 2x - 4\sqrt{xy} + 8: \quad \min_{2:2} = 0$$