$y = x^2 - 12x + 8$

$(6, -28)$ minimum

$y = x^4 - 12x^2$

$(\sqrt{6}, -36)$ minimum and $(-\sqrt{6}, -36)$ minimum and $(0,0)$ maximum

$y = x - 1 - x^{-2}$

$(4, -17)$ minimum

$y = 5x^2 + 2x$

$(2, -4\sqrt{2})$ minimum

$y = \frac{1}{2}x^2(x-6)$

$(-0.2, -0.2)$ minimum

$y = x^3 - 3x^2 + 3x$

$(1,1)$ point of inflexion

$y = 27 - 2x^4$

$(0,27)$ maximum

$y = x - 3\sqrt{x}$

$(2.25, -2.25)$ minimum

$y = 10 - 5x^2$

$(0,10)$ maximum

$y = 3 + 2x - x^2$

$(4,20)$ maximum

$(3,27)$ minimum

$y = \frac{3}{2}x^2 + \frac{48}{x}$

$(1,4)$ maximum

$y = x^2 + \frac{54}{x}$

$y = x + \frac{1}{x}$

$(-1,-2)$ maximum and $(1,2)$ minimum

$y = (6+x)(1-x)$

$(-2.5, 12.25)$ maximum

$y = 4x^2 + 6x$

$(-0.75, -2.25)$ minimum

$y = x^2 - x + 6$

$(0.5, 6.25)$ maximum

$y = x^3 - x^2 - x + 1$

$\left(\frac{\sqrt{3}}{3}, \frac{2\sqrt{3}}{9}\right)$ maximum and $(1,0)$ minimum

$y = x(x^2 - 4x - 3)$

$\left(-\frac{1}{\sqrt{3}}, \frac{1}{9}\right)$ maximum and $(3,18)$ minimum