

$$\begin{aligned} & \text{restart;} \\ & f := 2 \cdot x \cdot y < x \cdot x + y \cdot y - 2; \\ & \qquad \qquad \qquad 2 \, x \, y < x^2 + y^2 - 2 \end{aligned} \tag{1}$$

$$\begin{aligned} & g := x > 0; \\ & \qquad \qquad \qquad 0 < x \end{aligned} \tag{2}$$

$$\begin{aligned} & h := y > 0; \\ & \qquad \qquad \qquad 0 < y \end{aligned} \tag{3}$$

$$\begin{aligned} & \text{solve}(\{f, g, h\}); \\ & \qquad \{0 < x, x < \text{RootOf}(-2 + _Z^2, \text{index}=2) + y, -\text{RootOf}(-2 + _Z^2, \text{index}=2) < y\} \end{aligned} \tag{4}$$

$$\begin{aligned} & \text{eval}(\{f, g, h\}); \\ & \qquad \{0 < x, 0 < y, 2 \, x \, y < x^2 + y^2 - 2\} \end{aligned} \tag{5}$$

$$\begin{aligned} & \text{eval}(\{f, g, h\}, x=10); \\ & \qquad \{0 < 10, 0 < y, 20 \, y < 98 + y^2\} \end{aligned} \tag{6}$$

plot1 := plot(2·x·y, x=0..10, y=0..10) :

plot2 := plot(x² + y² - 2, x=0..10, y=0..10) :

Warning, unable to evaluate the function to numeric values in the region; see the plotting command's help page to ensure the calling sequence is correct

$$\begin{aligned} & i := x^2 + y^2 - 2 \cdot x \cdot y - 2; \\ & \qquad \qquad \qquad x^2 + y^2 - 2 - 2 \, x \, y \end{aligned} \tag{7}$$

$$\begin{aligned} & \text{solve}(i > 0); \\ & \qquad \{x < -\sqrt{2} + y\}, \{\sqrt{2} + y < x\} \end{aligned} \tag{8}$$

$$\begin{aligned} & \text{solve}(\{i, g, h\}); \\ & \qquad \{x = \sqrt{2} + y, 0 < y\}, \{x = -\sqrt{2} + y, \sqrt{2} < y\} \end{aligned} \tag{9}$$