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$$x = \frac{1}{\sqrt{5}}(-2x' + y')$$

$$y = \frac{1}{\sqrt{5}}(x' + 2y')$$

$$2x^2 + 4xy + 5y^2 - 6x - 8y - 1 = 0$$

$$2 \cdot \frac{1}{5}(-2x' + y')^2 + 4 \cdot \frac{1}{5}(-2x' + y')(x' + 2y') +$$

$$+ 5 \cdot \frac{1}{5}(x' + 2y')^2 - 6 \frac{1}{\sqrt{5}}(-2x' + y') - \frac{8}{\sqrt{5}}(x' + 2y') - 1 = 0$$

$$\frac{2}{5}(4x'^2 - 4x'y' + y'^2) + \frac{4}{5}(-2x'^2 + y'x' - 4x'y' + 2y'^2) +$$

$$+ (x'^2 + 4x'y' + 4y'^2) + \frac{12}{\sqrt{5}}x' - \frac{6}{\sqrt{5}}y' - \frac{8}{\sqrt{5}}x' - \frac{16}{\sqrt{5}}y' - 1 = 0$$

$$\frac{8}{5}x'^2 - \frac{8}{5}x'y' + \frac{2}{5}y'^2 - \frac{8}{5}x'^2 - \frac{12}{5}x'y' + \frac{8}{5}y'^2 + x'^2 + 4x'y' + 4y'^2 +$$

$$+ \frac{4}{\sqrt{5}}x' - \frac{22}{\sqrt{5}}y' - 1 = 0$$

$$x'^2 + 6y'^2 + \frac{4}{\sqrt{5}}x' - \frac{22}{\sqrt{5}}y' - 1 = 0$$

$$\left(x'^2 + 2\frac{2}{\sqrt{5}}x' + \frac{4}{5}\right) - \frac{4}{5} + 6y'^2 - \frac{22}{\sqrt{5}}y' - 1 = 0$$

$$\left(x' + \frac{2}{\sqrt{5}}\right)^2 - \frac{4}{5} + 6\left(y'^2 - \frac{11}{3\sqrt{5}}y'\right) - 1 = 0$$

$$\left(x' + \frac{2}{\sqrt{5}}\right)^2 + 6\left(y'^2 - 2\frac{11}{6\sqrt{5}}y' + \frac{11^2}{36 \cdot 5}\right) - \frac{6 \cdot 11^2}{36 \cdot 5} - \frac{9}{5} = 0$$

$$\left(x' + \frac{2}{\sqrt{5}}\right)^2 + 6\left(y' - \frac{11}{6\sqrt{5}}\right)^2 - \left(\frac{6 \cdot 11^2 + 9 \cdot 36}{36 \cdot 5}\right) = 0$$

$$\left(x' + \frac{2}{\sqrt{5}}\right)^2 + 6\left(y' - \frac{11}{6\sqrt{5}}\right)^2 - \frac{11^2 + 54}{30} = 0$$