Section 9.4: 4*, 5, 8*, 9, 15, 16*, 27, 28*, 29, 30*, 35, 36*, 41, 42*, 43, 44*, 55, 56*, 65, 66*

9.4.4

$$\begin{bmatrix} 4 \\ 1 \end{bmatrix} - \begin{bmatrix} 2 \\ 3 \end{bmatrix} = \begin{bmatrix} 2 \\ -2 \end{bmatrix}$$

9.4.8

$$|[-2, 7]'| = \sqrt{(-2)^2 + 7^2} = \sqrt{4 + 49} = \sqrt{53}$$

9.4.16

$$[-1, 2]' \cdot [-3, -4]' = (-1)(-3) + 2(-4) = 3 - 8 = -5$$

9.4.28

$0 = [-2, 1]' \cdot [y_1, y_2]' = -2y_1 + y_2$, so $y_2 = 2y_1$, for example $[1, 2]'$

9.4.30

$0 = [2, 0, -1]' \cdot [y_1, y_2, y_2]' = 2y_1 - y_2$, so $y_2 = 2y_1$, for instance $[1, 7, 2]'$

9.4.36

$$(x - 1) + 2(y - 2) = 0$$

9.4.42

$$-(x - 3) + (y + 1) + 2(z - 2) = 0$$

9.4.44

$$[3, -4]' + t[-1, 2]'$$

9.4.56

$$[2, 0, 4]' + t[1, 2, 3]'$$

9.4.66

$[1, 2, -1]'$ is the normal vector and $(0, 0, 1)$ is a point on the plane, so $[0, 0, 1]' + t[1, 2, -1]'$