

Solve the following systems of linear equations. If you cannot find a unique solution, explain why not. State which tool(s) you chose to use to obtain your solutions. Note, the first two are easy and should be used to check your solution method. Express complex answers in both formats.

a)  $2x + 3y = 5$

$x + 2y = 7$

$[x = -11, y = 9]$

b)  $(8-j6)w + (3\angle 25^\circ)z = 12\angle -20^\circ$

$(3.2\angle 45^\circ)w - (6-j3)z = -(3\angle 40^\circ)$

$[w = 1.379 + j0.111, z = 0.336 + j1.051]$

c)  $2t - 3u + 3v = 5$

$-4t + 6u - 2v = 9$

$3t - 7u + 9v = 12$

Solved using TI-68

$$\hookrightarrow \underline{t = 5.5}, \quad \underline{u = 6.75} \quad \& \quad \underline{v = 4.75}$$

d)  $(6\angle 125^\circ)r + (8+j6)w + (7\angle 25^\circ)z = 12\angle -60^\circ$

$(4+j8)r + (7\angle 25^\circ)w + (7-j3)z = 18\angle 30^\circ$

$(12+j4)r + (6\angle -45^\circ)w + (3\angle 125^\circ)z = 8\angle 10^\circ$

$$\hookrightarrow \underline{r = 2.3507 \angle 20.949^\circ = 2.195 + j0.840}$$

$$\underline{w = 3.3037 \angle -85.05^\circ = 0.285 - j3.291}$$

$$\underline{z = 1.0968 \angle 99.448^\circ = -0.180 + j1.082}$$