Intersection of 3 Planes Assignment /25

Due date: Monday June 15th, 9AM

1. Solve each linear system below. Give a geometric interpretation of each system, by describing the orientation of the planes in 3-space. **[20 marks]**

a) $2x + y + 6z = 7$
$3x + 4y + 3z = -8$
$x - 2y - 4z = 9$

b) $x - 5y + 2z - 10 = 0$
$x + 7y - 2z + 6 = 0$
$8x + 5y + z - 20 = 0$

c) $2x + y - z = 10$
$-4x - 2y + 2z + 10 = 0$
$2x - y + 5z = 3$

d) $x + 3y - z = -10$
$2x + y + z = 8$
$x - 2y + 2z = -4$

2. For what value(s) of *k* will the following linear system have a unique solution? **[5 marks]**

$$\boldsymbol{k}x + 2y - z = 5$$
$$x - 3z = 0$$
$$4x + y - z = 2$$