Linear Systems in Three Variables

Solve the following systems of equations

1. $x - y = 1$
   $2y + z = -4$
   $x - 2z = -6$

2. $p + q + 3r = 4$
   $2q + 3r = 7$
   $p - q - r = -2$

3. $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 5$
   $\frac{1}{x} + \frac{1}{y} = 2$
   $\frac{1}{x} - \frac{1}{z} = -2$

4. $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 6$
   $\frac{1}{b} + \frac{1}{c} = 5$
   $\frac{1}{a} - \frac{1}{b} = -1$

Linear Systems in Three Variables

Solve the following systems of equations

1. $x - y = 1$
   $2y + z = -4$
   $x - 2z = -6$

   $x = -2, y = -3, z = 2$

2. $p + q + 3r = 4$
   $2q + 3r = 7$
   $p - q - r = -2$

   $\boldsymbol{p = 2, q = 5, r = -1}$

3. $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 5$
   $\frac{1}{x} + \frac{1}{y} = 2$
   $\frac{1}{x} - \frac{1}{z} = -2$

   $x = 1, y = 1, z = \frac{1}{3}$

4. $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 6$
   $\frac{1}{b} + \frac{1}{c} = 5$
   $\frac{1}{a} - \frac{1}{b} = -1$

   $a = 1, b = \frac{1}{2}, c = \frac{1}{3}$