```
> f1 := k1*x1*x2^2 - k2*x3;
  f2 := -(k1*x1*x2^2 - k2*x3);
  f3 := -(k1*x1*x2^2 - k2*x3);
  h1 := k1*x1*x2^2 - k2*x3;
  h2 := -x1 - x2 - c1;
  h3 := -x1 - x3 - c2;
```

$$f1 := k1\ x1\ x2^2 - k2\ x3$$
$$f2 := -k1\ x1\ x2^2 + k2\ x3$$
$$f3 := -k1\ x1\ x2^2 + k2\ x3$$
$$h1 := k1\ x1\ x2^2 - k2\ x3$$
$$h2 := -x1 - x2 - c1$$
$$h3 := -x1 - x3 - c2 \qquad (1)$$

```
> sh := subs(c1=-3, c2=-11/4, k1=1, k2=8/3, [h1, h2, h3]);
```

$$sh := \left[x1\ x2^2 - \frac{8\ x3}{3},\ -x1 - x2 + 3,\ -x1 - x3 + \frac{11}{4}\right] \qquad (2)$$

```
> r:=RootFinding[Isolate](sh, [x1, x2, x3]);
```

$$r := [[x1 = 2.577350269,\ x2 = 0.4226497308,\ x3 = 0.1726497308],\ [x1 = 2.,\ x2 = 1.,\ x3 = 0.7500000000],\ [x1 = 1.422649731,\ x2 = 1.577350269,\ x3 = 1.327350269]] \qquad (3)$$

```
> sf := subs(c1=-3, c2=-11/4, k1=1, k2=8/3, [f1, f2, f3]);
```

$$sf := \left[x1\ x2^2 - \frac{8\ x3}{3},\ -x1\ x2^2 + \frac{8\ x3}{3},\ -x1\ x2^2 + \frac{8\ x3}{3}\right] \qquad (4)$$

```
> for i from 1 to nops(r) do
      subs(r[i], diff(sf[1], x1)) + subs(r[i], diff(sf[2], x2))
    + subs(r[i], diff(sf[3], x3));
  od;
```

$$0.666666668$$
$$-0.333333333$$
$$0.666666666 \qquad (5)$$