```
In[18]:= generadortotal[codigo, Table[i, {i, 1, 20}]],
    All → True, TextoInicial → "Further Mathematics – 2018/2019",
    Relacion → "Chapter 3 – Test for ", NumSerie → True]
```

Further Mathematics - 2018/2019   Chapter 3 - Test for el número de serie: 1

Exercise 1

Compute the curvature for $C(t) = \{-2\,Cos[t], 3\,Sin[t], 0\}$ at the point t=3.

1) k(3) = 2.20626

2) k(3) = -7.27978

3) k(3) = -8.55117

4) k(3) = 8.98423

5) k(3) = 0.225962

Exercise 2

Compute the Gauss curvature for $X(u,v) =$
$\{-Cos[u]\,(2+Cos[v]) + 2\,Sin[v],\ (2+Cos[v])\,Sin[u] + 2\,Sin[v],\ -Sin[v]\}$
at the point (u,v) = (5,1).

1) u(5,1) = -4.98043

2) u(5,1) = -6.31941

3) u(5,1) = 7.48893

4) u(5,1) = 2.0518

5) u(5,1) = 0.00829818

Further Mathematics - 2018/2019 el número de serie: 2   Chapter 3 - Test for

Exercise 1

Compute the curvature for $C(t) = \{Cos[t] - Sin[t], Cos[t], 3\,t\}$ at the point $t=1$.

1) k(1) = 1.37488

2) k(1) = -8.68577

3) k(1) = 0.0532364

4) k(1) = -6.12117

5) k(1) = -3.3282

Exercise 2

Compute the Gauss curvature for $X(u,v) =$
$\{(1 + v^2)\,Cos[u] - (1 + v^2)\,Sin[u], (1 + v^2)\,Cos[u], v\}$ at the point $(u,v) = (6,6)$.

1) u(6,6) = -5.63174

2) u(6,6) = -3.02635

3) u(6,6) = -2.58728×10^{-6}

4) u(6,6) = 8.58539

5) u(6,6) = -2.73253

Further Mathematics - 2018/2019   Chapter 3 - Test for el número de serie: 3

Exercise 1

Compute the torsion for $C(t) =$
$\left\{ t - 2\left(7 - 2t + 2t^2\right), \ 7 - 2t + 2t^2, \ 3 - 7t + 9t^2 - 2\left(7 - 2t + 2t^2\right) \right\}$ at the point t=7.

1) $\tau(7) = 2.0512$

2) $\tau(7) = -1.69123$

3) $\tau(7) = 0$

4) $\tau(7) = -8.80524$

5) $\tau(7) = 8.32278$

Exercise 2

Compute the Gauss curvature for $X(u,v) =$
$\left\{ v\,\text{Cos}[u] - 2\,v\,\text{Sin}[u], \ v\,\text{Sin}[u], \ v + 2\,v\,\text{Cos}[u] - 2\,v\,\text{Sin}[u] \right\}$ at the point $(u,v) = (0,3)$.

1) $u(0,3) = 6.3149$

2) $u(0,3) = 4.3494$

3) $u(0,3) = 0$

4) $u(0,3) = 4.93788$

5) $u(0,3) = -8.58406$

Exercise 1

```
Compute the curvature for C(t)={6 Cos[t], -2 Cos[t] + 3 Sin[t], -2 Cos[t]} at the point t=5.
```

1) k(5) = -7.85339

2) k(5) = 6.37639

3) k(5) = -1.15222

4) k(5) = 0.081256

5) k(5) = 3.58544

Exercise 2

```
Compute the Gauss curvature for X(u,v) =
  {3 Cos[u] (2 + Cos[v]) - 2 Sin[v], -Cos[u] (2 + Cos[v]) + (2 + Cos[v]) Sin[u] - Sin[v],
   -Cos[u] (2 + Cos[v]) + Sin[v]} at the point (u,v) = (5,2).
```

1) u(5,2) = -1.4061

2) u(5,2) = 5.84117

3) u(5,2) = 1.18171

4) u(5,2) = -0.000504586

5) u(5,2) = -7.49036

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Exercise 1

Compute the curvature for `C(t) = {3 t + Cos[t] + Sin[t], 2 t + Sin[t], t}` at the point t=0.

1) k(0) = 5.12192

2) k(0) = 5.39899

3) k(0) = 0.0238528

4) k(0) = -6.74747

5) k(0) = -0.820059

Exercise 2

Compute the Gauss curvature for `X(u,v) =`
`{3 v + v Cos[u] + v Sin[u], 2 v + v Sin[u], v}` at the point (u,v) = (0,-7).

1) u(0,-7) = -6.74747

2) u(0,-7) = -8.68068

3) u(0,-7) = 0

4) u(0,-7) = -6.07791

5) u(0,-7) = 5.12192

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Exercise 1

Compute the torsion for $C(t) =$
$\{Cos[t] + 10 Sin[t], 5 Sin[t], -Cos[t] - 15 Sin[t]\}$ at the point t=0.

1) $\tau(0) = 0$

2) $\tau(0) = 8.00283$

3) $\tau(0) = -4.56076$

4) $\tau(0) = -6.41985$

5) $\tau(0) = 5.04423$

Exercise 2

Compute the Gauss curvature for $X(u,v) =$
$\{Cos[u] (3 + Cos[v]) + 2 (3 + Cos[v]) Sin[u] - 2 Sin[v], (3 + Cos[v]) Sin[u],$
$-Cos[u] (3 + Cos[v]) - 3 (3 + Cos[v]) Sin[u] + 3 Sin[v]\}$ at the point $(u,v) = (1,0)$.

1) $u(1,0) = 0.0123286$

2) $u(1,0) = -5.00628$

3) $u(1,0) = 4.69179$

4) $u(1,0) = 4.94026$

5) $u(1,0) = 5.04423$

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Exercise 1

Compute the curvature for $C(t) = \{2\cos[t], -8\cos[t] + \sin[t], 0\}$ at the point $t=3$.

1) $k(3) = -0.0461238$

2) $k(3) = -0.699634$

3) $k(3) = 5.00399$

4) $k(3) = 64.2341$

5) $k(3) = -0.168956$

Exercise 2

Compute the Gauss curvature for $X(u,v) =$
$\{\cos[u]\,(4+\cos[v]) - 3\sin[v], -4\cos[u]\,(4+\cos[v]) + (4+\cos[v])\sin[u] + 6\sin[v], \sin[v]\}$
 at the point $(u,v) = (0,1)$.

1) $u(0,1) = 1.14632$

2) $u(0,1) = -6.44353$

3) $u(0,1) = 5.21371$

4) $u(0,1) = 0.00294638$

5) $u(0,1) = -0.672538$

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Exercise 1

Compute the torsion for C(t)=
{Cos[t] + 2 Sin[t], Sin[t], 2 t + Cos[t] + 3 Sin[t]} at the point t=6.

1) $\tau(6)$ = 8.39192

2) $\tau(6)$ = -3.83007

3) $\tau(6)$ = -7.46373

4) $\tau(6)$ = -4.22941

5) $\tau(6)$ = 0.299419

Exercise 2

Compute the Gauss curvature for X(u,v)=
{Cos[u] + 2 Sin[u], Sin[u], v + Cos[u] + 3 Sin[u]} at the point (u,v) = (5,2).

1) u(5,2) = -4.22941

2) u(5,2) = 3.74892

3) u(5,2) = -0.623256

4) u(5,2) = -7.85597

5) u(5,2) = 0

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el número de serie: 9

Exercise 1

Compute the torsion for $C(t) = \{t,\ 6 - 5\,t + 8\,t^2,\ -8 + 13\,t - 17\,t^2\}$ at the point t=6.

1) $\tau(6) = -6.01407$

2) $\tau(6) = -8.104$

3) $\tau(6) = 0$

4) $\tau(6) = -3.72331$

5) $\tau(6) = -1.8132$

Exercise 2

Compute the Gauss curvature for $X(u,v) = \{Cos[u],\ -v + Cos[u],\ v + Sin[u]\}$ at the point $(u,v) = (0,4)$.

1) $u(0,4) = -0.95048$

2) $u(0,4) = -4.12787$

3) $u(0,4) = 0$

4) $u(0,4) = -2.88512$

5) $u(0,4) = 7.64698$

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el número de serie: 10

Exercise 1

Compute the curvature for C(t) = {2 t + Cos[t] + Sin[t], -Cos[t], 2 t} at the point t=2.

1) k(2) = -1.13689

2) k(2) = 0.107209

3) k(2) = 1.27778

4) k(2) = -2.38817

5) k(2) = 7.92436

Exercise 2

Compute the Gauss curvature for X(u,v) =
{v + v Cos[u] + v Sin[u], -v Cos[u], v} at the point (u,v) = (5,-2).

1) u(5,-2) = 7.92436

2) u(5,-2) = 0

3) u(5,-2) = 4.70653

4) u(5,-2) = -8.55703

5) u(5,-2) = -1.13689

Exercise 1

Compute the torsion for `C(t) = {5 Cos[t] + 2 Sin[t], Sin[t], 0}` at the point t=3.

1) $\tau(3)$ = 1.67377

2) $\tau(3)$ = 3.51282

3) $\tau(3)$ = 1.81089

4) $\tau(3)$ = 6.3376

5) $\tau(3)$ = 0

Exercise 2

Compute the Gauss curvature for `X(u,v) =`
$\{-14 + 8\,u^2 + 8\,v - 6\,v^2 + u\,(-1 + 14\,v),\ -7 + 4\,u^2 + 4\,v - 3\,v^2 + u\,(-1 + 7\,v),\ 7 + u - 4\,u^2 - 3\,v - 7\,u\,v + 3\,v^2\}$
at the point `(u,v) = (-5,-8)`.

1) u(-5,-8) = -2.89498

2) u(-5,-8) = 5.79941

3) u(-5,-8) = -5.38819

4) u(-5,-8) = -6.68981

5) u(-5,-8) = -3.3515×10^{-8}

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Exercise 1

Compute the curvature for $C(t) =$
$\left\{ t - 2\left(-9 - 5t - 5t^2\right), -3 + 2t + 6t^2 + 3\left(-9 - 5t - 5t^2\right), 3 - 3t - 6t^2 \right\}$ at the point t=3.

1) k(3) = 0.000119993

2) k(3) = -1.44944

3) k(3) = 1.76381

4) k(3) = -8.20749

5) k(3) = 4.72633

Exercise 2

Compute the Gauss curvature for $X(u,v) =$
$\left\{ u - 2v, 8 - 5u^2 + 6v + uv + 2v^2, -8 + 5u^2 - 3v - 2v^2 - u(1 + v) \right\}$ at the point $(u,v) = (-5,4)$.

1) u(-5,4) = -1.03163×10^{-8}

2) u(-5,4) = -4.23554

3) u(-5,4) = 4.72633

4) u(-5,4) = 1.90524

5) u(-5,4) = -8.18402

Exercise 1

Compute the curvature for $C(t) = \{-2 - 4t - 3t^2,\ 2 + 3t + 3t^2,\ -6 + 3t - 5t^2\}$ at the point t=10.

1) k(10) = -1.57071

2) k(10) = 0.0000326965

3) k(10) = -6.33917

4) k(10) = -8.47965

5) k(10) = -6.50977

Exercise 2

Compute the Gauss curvature for $X(u,v) =$
$\{u + v,\ -2u - v,\ 5 + 5u^2 + 3v - 3u(1 + v)\}$ at the point $(u,v) = (2,-2)$.

1) u(2,-2) = 3.22503

2) u(2,-2) = -3.9057×10^{-6}

3) u(2,-2) = 4.90438

4) u(2,-2) = -3.92501

5) u(2,-2) = -7.49508

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Exercise 1

Compute the curvature for C(t) =
$\{9\,t + 4\,(-3 - t - 3\,t^2),\ -3 + t - 3\,t^2,\ -2 + 4\,t + 6\,t^2\}$ at the point t=1.

1) k(1) = -3.60401

2) k(1) = 1.99965

3) k(1) = 0.00984903

4) k(1) = 7.77763

5) k(1) = 3.09602

Exercise 2

Compute the Gauss curvature for X(u,v) =
$\{9\,(1 + 3\,v^2)\,\mathrm{Cos}[u] + 4\,(1 + 3\,v^2)\,\mathrm{Sin}[u],\ 2\,(1 + 3\,v^2)\,\mathrm{Cos}[u] + (1 + 3\,v^2)\,\mathrm{Sin}[u],\ v - (1 + 3\,v^2)\,\mathrm{Cos}[u]\}$
at the point (u,v) = (3,-6).

1) u(3,-6) = -8.00381

2) u(3,-6) = 5.98001

3) u(3,-6) = -1.16263×10^{-10}

4) u(3,-6) = 5.83177

5) u(3,-6) = 1.99965

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el número de serie: 15

Exercise 1

Compute the curvature for $C(t) = \{Cos[t], Sin[t], t - Sin[t]\}$ at the point t=3.

1) k(3) = -2.75567

2) k(3) = -1.82926

3) k(3) = 8.28143

4) k(3) = -0.735959

5) k(3) = 0.202014

Exercise 2

Compute the Gauss curvature for $X(u,v) = \{v\,Cos[u], v\,Sin[u], v - v\,Sin[u]\}$ at the point (u,v) = (1,-9).

1) u(1,-9) = -6.6976

2) u(1,-9) = -0.735959

3) u(1,-9) = -2.75567

4) u(1,-9) = -3.86017

5) u(1,-9) = 0

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Exercise 1

Compute the torsion for $C(t) = \{t, 4 - 5t - 8t^2, -4 - 5t - 7t^2\}$ at the point t=10.

1) $\tau(10) = -7.30991$

2) $\tau(10) = -2.45986$

3) $\tau(10) = 6.60069$

4) $\tau(10) = 0$

5) $\tau(10) = 3.19211$

Exercise 2

Compute the Gauss curvature for $X(u,v) =$
$\{Cos[u] (3 + Cos[v]), Cos[u] (3 + Cos[v]) + (3 + Cos[v]) Sin[u] + Sin[v],$
$-Cos[u] (3 + Cos[v]) + Sin[v]\}$ at the point $(u,v) = (1,1)$.

1) $u(1,1) = -2.17149$

2) $u(1,1) = -6.89571$

3) $u(1,1) = 2.33877$

4) $u(1,1) = 0.923319$

5) $u(1,1) = -4.5031$

Exercise 1

Compute the curvature for C(t) =
$\left\{2 + 7\,t + 3\,t^2 - 2\left(9 + 5\,t - 6\,t^2\right), 9 + 5\,t - 6\,t^2, -2 - 6\,t - 3\,t^2\right\}$ at the point t=8.

1) k(8) = -4.74944

2) k(8) = 0.00001431

3) k(8) = -8.51915

4) k(8) = -8.31842

5) k(8) = -6.9327

Exercise 2

Compute the Gauss curvature for X(u,v) =
$\left\{-v + \text{Cos}[u] - 2\,\text{Sin}[u], \text{Sin}[u], v\right\}$ at the point (u,v) = (1,2).

1) u(1,2) = -6.9327

2) u(1,2) = 0

3) u(1,2) = 3.32095

4) u(1,2) = 7.83623

5) u(1,2) = 2.90336

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el número de serie: 18

Chapter 3 - Test for

Exercise 1

Compute the torsion for $C(t) = \{t, 7 + 2t^2, -2 - t - 4t^2\}$ at the point t=4.

1) $\tau(4) = -3.83808$

2) $\tau(4) = 0$

3) $\tau(4) = -8.57817$

4) $\tau(4) = -0.553704$

5) $\tau(4) = -3.26266$

Exercise 2

Compute the Gauss curvature for $X(u,v) =$
$\{(1 + 3v^2) \cos[u], -v + (1 + 3v^2) \sin[u], v\}$ at the point $(u,v) = (3,-5)$.

1) $u(3,-5) = -2.90225$

2) $u(3,-5) = -9.54431 \times 10^{-8}$

3) $u(3,-5) = -6.56265$

4) $u(3,-5) = 8.03969$

5) $u(3,-5) = -3.83808$

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el número de serie: 19

Exercise 1

Compute the curvature for C(t) =
$\{-4\,t - 3\,Cos[t] - Sin[t], -Cos[t] + 2\,Sin[t], 2\,t + 2\,Cos[t]\}$ at the point t=0.

1) k(0) = 0.0693829

2) k(0) = -3.43983

3) k(0) = -4.0908

4) k(0) = 1.63694

5) k(0) = 1.85945

Exercise 2

Compute the Gauss curvature for X(u,v) =
$\{-2\,v - 3\,v\,Cos[u] - v\,Sin[u], -v\,Cos[u] + 2\,v\,Sin[u], v + 2\,v\,Cos[u]\}$ at the point (u,v) = (4,3).

1) u(4,3) = 0

2) u(4,3) = 3.60359

3) u(4,3) = 1.83783

4) u(4,3) = 8.48301

5) u(4,3) = -8.69754

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Exercise 1

Compute the curvature for C(t) =
{-t + Cos[t], -2 t + 4 Cos[t] + Sin[t], -t + 2 Cos[t]} at the point t=3.

1) k(3) = 2.68232

2) k(3) = -3.55821

3) k(3) = -8.00121

4) k(3) = 0.0407095

5) k(3) = -7.55642

Exercise 2

Compute the Gauss curvature for X(u,v) =
{-v + v Cos[u], -2 v + 4 v Cos[u] + v Sin[u], -v + 2 v Cos[u]} at the point (u,v) = (3,6).

1) u(3,6) = 0.812819

2) u(3,6) = 2.26384

3) u(3,6) = 6.25744

4) u(3,6) = 0

5) u(3,6) = -8.00121