

graphs_tangents

November 29, 2021

```
[1]: import numpy as np
import matplotlib.pyplot as plt
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[2]: T = np.linspace(0,2*np.pi,100)
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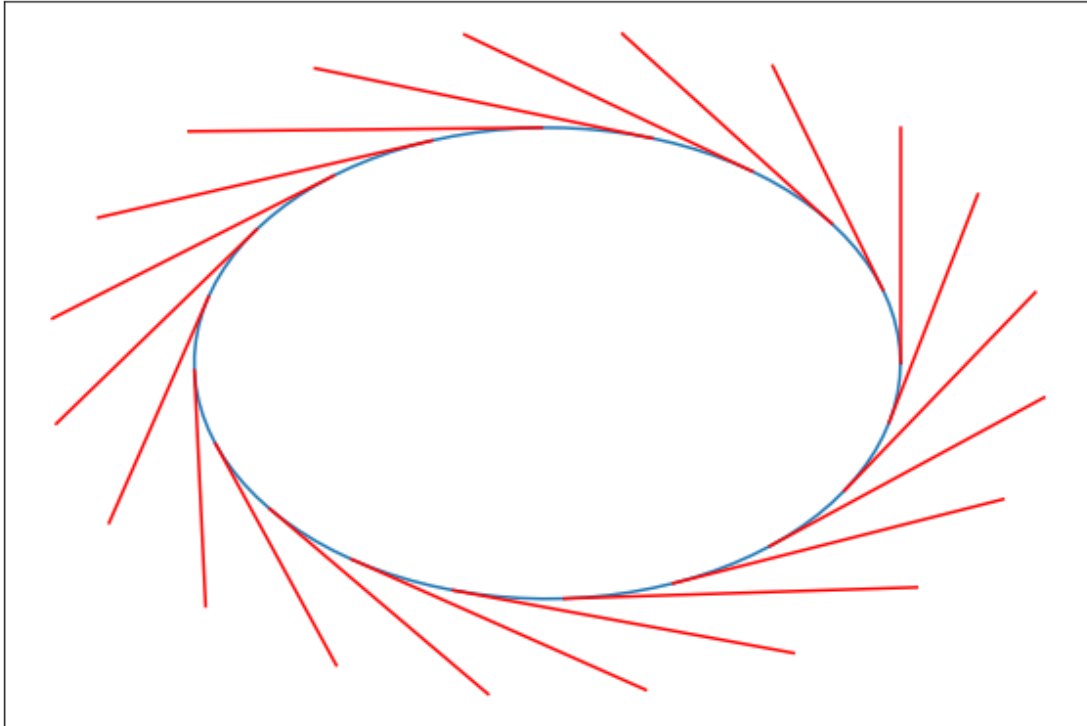
```
[35]: fig, ax = plt.subplots()

fig.set_size_inches(10,10)

#fig.set_size_inches(8,8)
ax.set_aspect('equal')
ax.axes.xaxis.set_visible(False)
ax.axes.yaxis.set_visible(False)

C = np.array([3*np.cos(T), 2*np.sin(T)])
ax.plot(C[0],C[1]);
S = T[:5]
P = np.array([-3*np.sin(S), 2*np.cos(S)])
C = np.array([3*np.cos(S), 2*np.sin(S)])
P = P + C

for i in range(len(S)):
    plt.plot([C[0,i],P[0,i]], [C[1,i],P[1,i]], 'r')
```



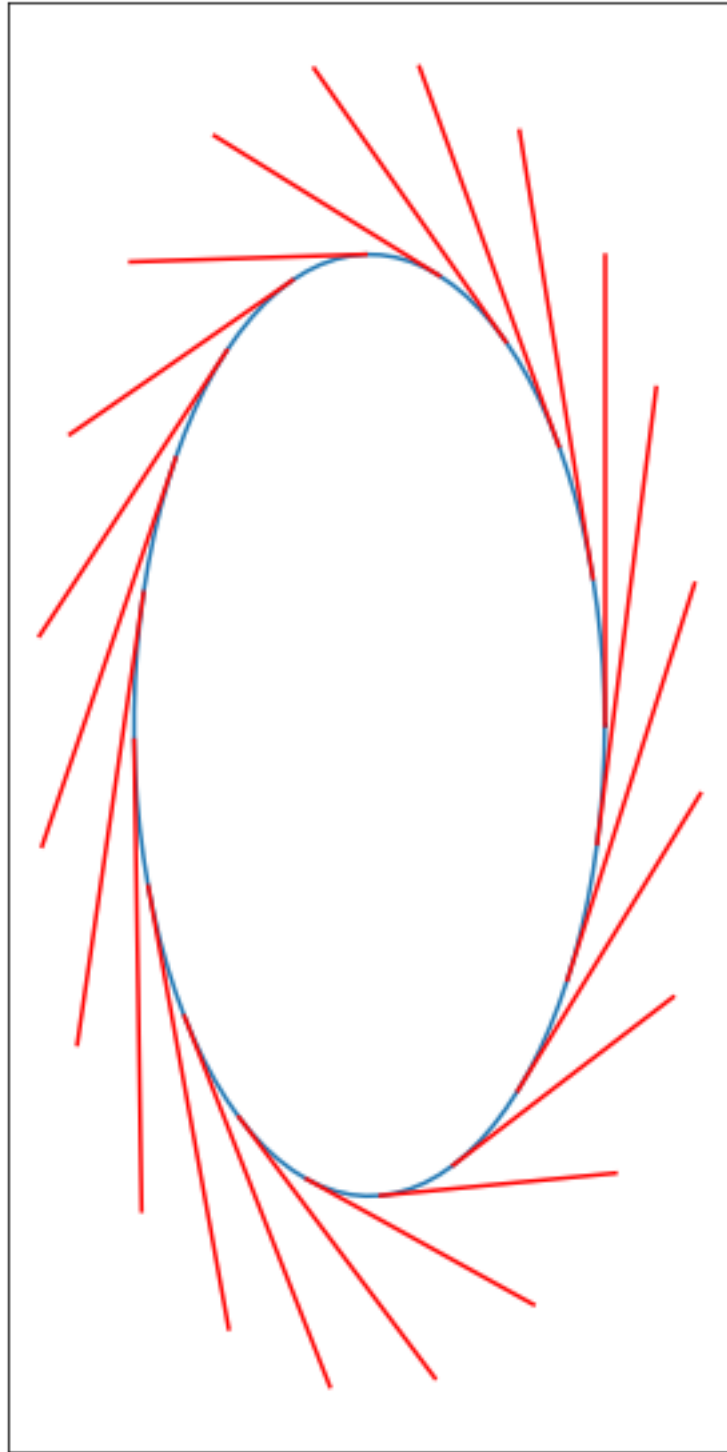
```
[37]: fig, ax = plt.subplots()

fig.set_size_inches(10,10)

#fig.set_size_inches(8,8)
ax.set_aspect('equal')
ax.axes.xaxis.set_visible(False)
ax.axes.yaxis.set_visible(False)

C = np.array([1 + np.cos(T), -1 + 2*np.sin(T)])
ax.plot(C[0],C[1]);
S = T[:5]
P = np.array([-np.sin(S), 2*np.cos(S)])
C = np.array([1+ np.cos(S), -1 + 2*np.sin(S)])
P = P + C

for i in range(len(S)):
    plt.plot([C[0,i],P[0,i]], [C[1,i],P[1,i]], 'r')
```



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[41]: fig, ax = plt.subplots()
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fig.set_size_inches(10,10)

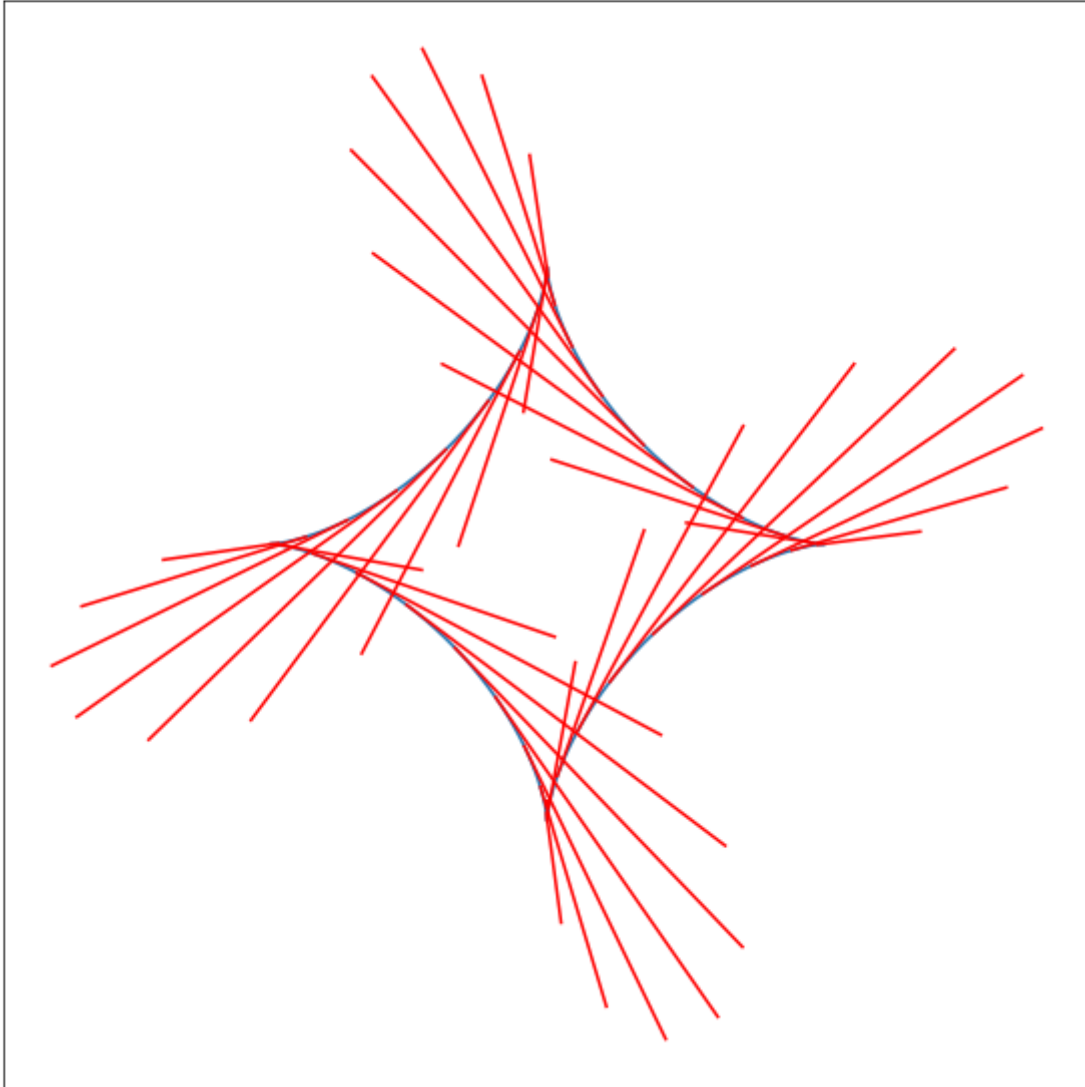
#fig.set_size_inches(8,8)
ax.set_aspect('equal')
ax.axes.xaxis.set_visible(False)
ax.axes.yaxis.set_visible(False)

T = np.linspace(0,2*np.pi,200)

C = np.array([np.cos(T)**3, np.sin(T)**3])
ax.plot(C[0],C[1]);
S = T[:5]
P = 3*np.array([-np.sin(S)*np.cos(S)**2, np.cos(S)*np.sin(S)**2])
C = np.array([np.cos(S)**3, np.sin(S)**3])
P = P + C

for i in range(len(S)):
    plt.plot([C[0,i],P[0,i]], [C[1,i],P[1,i]], 'r')

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[42]: ! ../.g

```
[master cd9bb1b] web
4 files changed, 669 insertions(+), 348 deletions(-)
rename PROG/.ipynb_checkpoints/{Untitled2-checkpoint.ipynb => graphs_tangents-
checkpoint.ipynb} (100%)
rename PROG/.ipynb_checkpoints/{Untitled3-checkpoint.ipynb => random_blob-
checkpoint.ipynb} (100%)
create mode 100644 PROG/graphs_tangents.ipynb
rename PROG/{Untitled2.ipynb => random_blob.ipynb} (63%)
Counting objects: 6, done.
Delta compression using up to 12 threads.
Compressing objects: 100% (6/6), done.
```

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Writing objects: 100% (6/6), 160.23 KiB | 4.00 MiB/s, done.
Total 6 (delta 3), reused 0 (delta 0)
remote: Resolving deltas: 100% (3/3), completed with 3 local objects.
To https://github.com/macbuse/macbuse.github.io.git
534e451..cd9bb1b master -> master
```

```
[43]: ! pip install nbconvert
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Requirement already satisfied: nbconvert in
/home/macbuse/anaconda3/lib/python3.8/site-packages (5.6.1)
Requirement already satisfied: mistune<2,>=0.8.1 in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from nbconvert) (0.8.4)
Requirement already satisfied: pandocfilters>=1.4.1 in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from nbconvert) (1.4.2)
Requirement already satisfied: testpath in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from nbconvert) (0.4.4)
Requirement already satisfied: Jinja2>=2.4 in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from nbconvert) (2.11.2)
Requirement already satisfied: entrypoints>=0.2.2 in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from nbconvert) (0.3)
Requirement already satisfied: jupyter-core in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from nbconvert) (4.6.3)
Requirement already satisfied: defusedxml in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from nbconvert) (0.6.0)
Requirement already satisfied: traitlets>=4.2 in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from nbconvert) (4.3.3)
Requirement already satisfied: nbformat>=4.4 in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from nbconvert) (5.0.7)
Requirement already satisfied: bleach in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from nbconvert) (3.1.5)
Requirement already satisfied: pygments in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from nbconvert) (2.6.1)
Requirement already satisfied: MarkupSafe>=0.23 in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from
Jinja2>=2.4->nbconvert) (1.1.1)
Requirement already satisfied: ipython-genutils in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from
traitlets>=4.2->nbconvert) (0.2.0)
Requirement already satisfied: decorator in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from
traitlets>=4.2->nbconvert) (4.4.2)
Requirement already satisfied: six in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from
traitlets>=4.2->nbconvert) (1.15.0)
Requirement already satisfied: jsonschema!=2.5.0,>=2.4 in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from
nbformat>=4.4->nbconvert) (3.2.0)
Requirement already satisfied: webencodings in
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/home/macbuse/anaconda3/lib/python3.8/site-packages (from bleach->nbconvert)
(0.5.1)
Requirement already satisfied: packaging in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from bleach->nbconvert)
(20.4)
Requirement already satisfied: attrs>=17.4.0 in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from
jsonschema!=2.5.0,>=2.4->nbformat>=4.4->nbconvert) (19.3.0)
Requirement already satisfied: pyrsistent>=0.14.0 in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from
jsonschema!=2.5.0,>=2.4->nbformat>=4.4->nbconvert) (0.16.0)
Requirement already satisfied: setuptools in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from
jsonschema!=2.5.0,>=2.4->nbformat>=4.4->nbconvert) (49.2.0.post20200714)
Requirement already satisfied: pyparsing>=2.0.2 in
/home/macbuse/anaconda3/lib/python3.8/site-packages (from
packaging->bleach->nbconvert) (2.4.7)
```

[]: