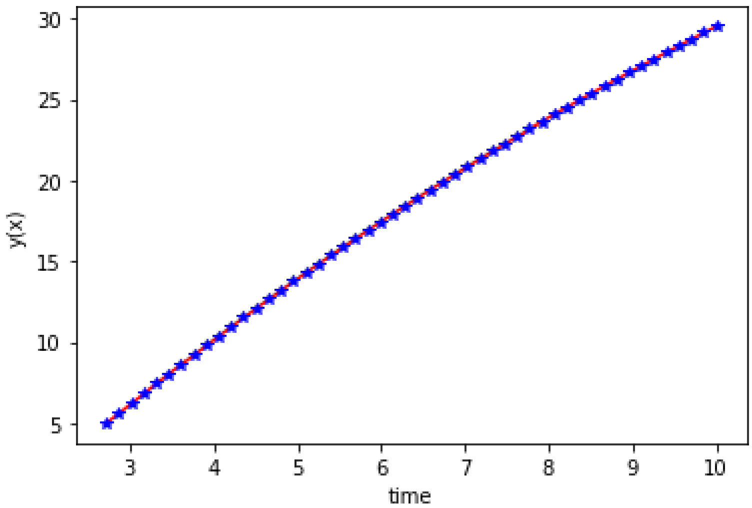
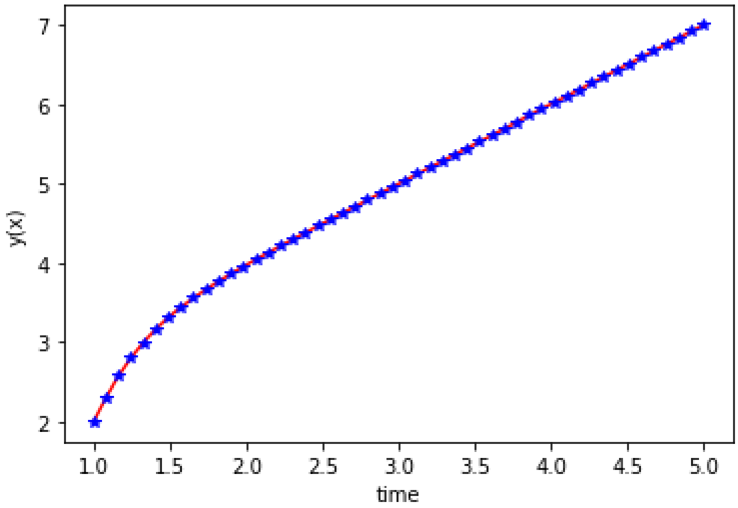
In [3]:

```
import numpy as np
from scipy.integrate import odeint
import matplotlib.pyplot as plt

def f(y,x):
    return 2/(x*np.log(x))*y + 1/x

#conditie initiala
ye=5

#time points
x = np.linspace(np.exp(1),10)

#solve ODE
y=odeint(f,ye,x)

def solExact(x):
    return 6*np.log(x)**2-np.log(x)

#plot results
plt.plot(x,y,'r-',x,solExact(x),'b*')
plt.xlabel('time')
plt.ylabel('y(x)')
plt.show()
```



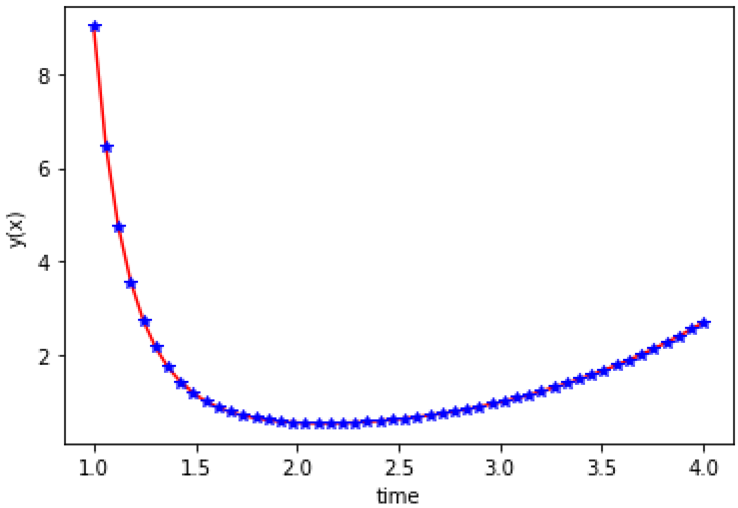
In [4]:

```
import numpy as np
from scipy.integrate import odeint
import matplotlib.pyplot as plt

def f(y,x):
    return -y**2 + 2*x*y + 5 - x**2

#conditie initiala
y1=2

#time points
x = np.linspace(1,5)

#solve ODE
y=odeint(f,y1,x)

def solExact(x):
    return x + 2 - 1 / (np.exp(4*x)*(3/4 * np.exp(-4) + np.exp(-4 *x) / 4))

#plot results
plt.plot(x,y, "r-", x, solExact(x), "b*")
plt.xlabel('time')
plt.ylabel('y(x)')
plt.show()
```



In [5]:

```
import numpy as np
from scipy.integrate import odeint
import matplotlib.pyplot as plt

def f(y,x):
    return - (6/x)*y + x * np.sqrt(y)

#conditie initiala
y1=9

#time points
x = np.linspace(1,4)

#solve ODE
y=odeint(f,y1,x)

def solExact(x):
    return x**(-6) * (29/10 + x**5 / 10)**2

#plot results
plt.plot(x,y, "r-", x, solExact(x), "b*")
plt.xlabel('time')
plt.ylabel('y(x)')
plt.show()
```



In [ ]: