```
In [1]: #1.Write a Python program to find area of a circle using math function
         import math
         r=float(input('enter the radius '))
         a= math.pi*r*r
         print('Area of circle= ',a)
         enter the radius 4
         Area of circle= 50.26548245743669
In [5]: #2.Write a program to find area of regular polygon using math function
         import math
         s=float(input('enter the number of sides '))
         l=float(input('enter the lengtgh of side '))
         area=(s*1)/(4*math.tan(math.pi/s))
         print('area= ',area)
         enter the number of sides 5
         enter the lengtgh of side 13.44
         area= 23.12321626391572
In [1]: #3.Write a program
         import math
         ra=float(input('enter the radius '))
         an=float(input('enter the angle '))
         if an < 360:
             sa=(math.pi*ra**2)/(an/360)
             print('the area of sector is ',sa)
         else:
             print('angle is out of range')
         enter the radius 9
         enter the angle 198
         the area of sector is 462.6709180741331
In [26]: #4.Write a python program to shuffle list l1=[100,1,2,3,30,40,"hai","hello"].
         from random import shuffle
         items=[100,1,2,3,30,40,'hai','hello']
         shuffle(items)
         print('after shuffling ',items)
         after shuffling [40, 3, 1, 100, 30, 2, 'hai', 'hello']
In [24]: #5.Write a program to generate random numbers between 1,10000 and difference between each ra
         ndom number is 50.
         import random
         random_list=[]
         for i in range(0,10000):
             random_list.append(random.randrange(0,10000,50))
         print(random_list)
         [200, 1500, 5600, 6950, 8250, 8900, 9700, 1150, 6500, 5850, 5750, 3300, 4150, 2250, 2600, 275
         0, 4200, 3900, 6400, 50, 4800, 3550, 9200, 5000, 6850, 2500, 6550, 5750, 1300, 1000, 4600, 87
         50, 2850, 5400, 8200, 650, 9100, 1400, 4000, 4050, 7300, 7250, 7450, 8750, 9400, 200, 1800, 6
         550, 9700, 6600, 1700, 3500, 2450, 4600, 6300, 4200, 4300, 750, 4400, 5250, 7750, 4000, 4700,
         6250, 3450, 700, 4500, 6350, 7300, 9050, 9250, 6900, 5800, 6600, 7100, 5150, 4800, 2700, 450
         0, 9750, 650, 7750, 7700, 8950, 1350, 9550, 1800, 3750, 9250, 6350, 7550, 1150, 7650, 650, 28
         50, 6200, 7800, 3950, 6050, 9800, 5900, 1650, 8100, 8550, 4950, 1900, 4700, 1150, 6750, 3600,
         4200, 6900, 4800, 2400, 9950, 4950, 1600, 9650, 2750, 450, 3200, 700, 5250, 650, 9900, 4700,
         7500, 7650, 8900, 7500, 850, 250, 7600, 4250, 9850, 700, 5900, 9250, 6800, 7600, 2600, 9600,
         2250, 2700, 7650, 2250, 2200, 650, 5600, 6750, 3800, 4300, 2300, 8350, 3550, 800, 4250, 2550,
         1400, 9200, 8100, 4050, 5100, 300, 6150, 1450, 5800, 3200, 8200, 3800, 8700, 6500, 2950, 880
         0, 2650, 4400, 3100, 6000, 5400, 6500, 1650, 8900, 950, 7950, 3500, 9900, 9650, 2550, 6250, 2
         400, 7550, 6300, 1950, 950, 7650, 4150, 3700, 6550, 3450, 8000, 6650, 1250, 2850, 5000, 200,
         8800, 5400, 7750, 3300, 3000, 4350, 550, 3600, 3050, 9350, 7150, 6700, 3950, 6850, 6250, 355
         0, 8450, 6400, 2500, 7800, 3050, 7050, 2400, 2950, 100, 4350, 9700, 5650, 4300, 5700, 7750, 8
         750, 9900, 1900, 6700, 5050, 850, 3100, 8150, 900, 7300, 6750, 3900, 950, 2150, 4450, 5700, 8
         700, 7900, 3950, 600, 5800, 50, 2850, 4150, 4100, 400, 600, 7050, 250, 6900, 50, 9950, 2050,
         150, 9400, 7000, 4200, 9900, 5100, 7550, 8550, 7800, 7050, 9400, 2850, 9250, 4650, 8700, 595
         0, 5250, 5300, 3550, 3850, 1200, 8600, 1500, 8300, 2400, 9850, 3600, 2150, 3500, 2100, 3600,
         5150, 500, 7150, 3450, 1900, 8900, 8700, 3400, 3250, 7950, 950, 400, 750, 1950, 4150, 3500, 3
         00, 8650, 550, 6800, 6800, 1850, 4200, 6850, 9900, 6400, 3900, 5050, 2250, 3000, 100, 3050, 5
         350, 2750, 1800, 8900, 3600, 7900, 7550, 1250, 4450, 250, 100, 300, 5900, 8200, 5050, 9700, 4
         800, 7450, 3800, 3700, 850, 5400, 1150, 6750, 3800, 3150, 8850, 450, 5300, 8250, 9650, 5000,
         1150, 4250, 3600, 7200, 950, 500, 1650, 1050, 3950, 3000, 9400, 4600, 2500, 9050, 3900, 3850,
         6650, 5000, 7550, 7100, 7950, 3050, 5650, 6050, 7000, 400, 7400, 5300, 4250, 3250, 5900, 590
         0, 9100, 9100, 650, 5350, 3100, 5050, 1050, 6850, 550, 1350, 8350, 3400, 3950, 7500, 6350, 70
         50, 9200, 6100, 8100, 1350, 5800, 8850, 8200, 7550, 8100, 4700, 7350, 5350, 5650, 4900, 9950,
         5850, 6800, 8000, 4400, 7700, 150, 9700, 2100, 2500, 6150, 6000, 1250, 8250, 2050, 5600, 600,
         9650, 9850, 7100, 1500, 3750, 500, 2350, 7700, 7050, 2800, 2450, 4600, 3650, 2900, 3350, 900,
         5800, 6700, 9600, 7750, 4650, 300, 0, 7100, 9000, 5850, 7950, 7400, 5650, 150, 5050, 9100, 89
         50, 300, 2300, 7300, 300, 1150, 4900, 4450, 2350, 8950, 5550, 2800, 6600, 6300, 3100, 3400, 5
         200, 8850, 8150, 900, 3800, 7650, 4950, 3200, 6450, 9150, 8600, 0, 8900, 600, 250, 5600, 120
         0, 850, 2750, 500, 8150, 9400, 1350, 9750, 2150, 4500, 1800, 1200, 4750, 7750, 2750, 6600, 80
         00, 8700, 7450, 2500, 5200, 9500, 650, 3650, 7900, 7500, 3850, 5900, 2500, 8150, 6050, 4700,
         6100, 3750, 5650, 6700, 950, 4150, 1850, 4950, 2750, 3450, 3100, 3050, 300, 700, 4050, 3300,
         3750, 7850, 6950, 5500, 9950, 100, 1200, 9100, 1600, 6000, 2150, 8000, 450, 8050, 8600, 6500,
         5850, 550, 5750, 900, 4100, 2650, 4450, 7700, 1300, 8050, 2400, 650, 7650, 7250, 1800, 1600,
         9500, 50, 1950, 8500, 8100, 7500, 1050, 5950, 400, 2700, 9650, 4600, 7800, 4800, 5050, 3300,
         8050, 4100, 4800, 4400, 2150, 4450, 7000, 6550, 5150, 6200, 4850, 2050, 8450, 4550, 6850, 405
         0, 350, 7450, 5850, 6700, 300, 2250, 3300, 3800, 6500, 9600, 3300, 1850, 3600, 250, 2950, 995
         0, 5900, 9500, 4350, 7650, 700, 4700, 3100, 4150, 7550, 3950, 5600, 8500, 8950, 6950, 3550, 3
         450, 3850, 9100, 9100, 100, 4450, 4250, 5350, 850, 9150, 5950, 7400, 5200, 7200, 3000, 3450,
         9000, 4400, 8250, 5800, 7100, 5900, 8200, 6250, 6200, 9150, 350, 6000, 5200, 2000, 8250, 510
         0, 7000, 3950, 3450, 3750, 850, 2500, 4750, 5100, 1200, 1900, 6250, 3350, 0, 3100, 3300, 885
         0, 3800, 8000, 3950, 8000, 6550, 5650, 5600, 8500, 5850, 7700, 2150, 3650, 6400, 1600, 1800,
         6850, 950, 800, 1350, 6450, 6100, 7200, 5800, 200, 3600, 5150, 7600, 1900, 650, 3200, 6100, 5
         750, 7000, 6250, 7650, 6450, 9600, 9200, 450, 7750, 6550, 7450, 550, 7300, 7800, 1550, 5900,
         7300, 7300, 7500, 6350, 8300, 3600, 5800, 6050, 8850, 500, 3900, 6150, 2850, 7050, 4250, 210
         0, 9900, 750, 1200, 5950, 5000, 9050, 550, 4900, 6350, 8600, 1050, 4050, 2100, 5400, 6800, 85
         50, 8100, 7300, 1950, 9000, 3150, 6100, 9000, 8150, 1750, 3050, 2800, 7150, 2650, 700, 8450,
         5450, 9300, 5050, 750, 4150, 1400, 3650, 6250, 8150, 9050, 900, 2850, 6350, 450, 4900, 0, 260
         0, 7900, 9150, 8700, 4700, 7450, 1200, 4000, 3350, 1000, 3950, 5950, 8600, 7050, 8700, 1300,
         9100, 8900, 4000, 4950, 7800, 8300, 7050, 2550, 9400, 7300, 2050, 3100, 4150, 4750, 7250, 445
         0, 6900, 9150, 7550, 1000, 4150, 7100, 5350, 9050, 8400, 500, 7550, 7900, 1850, 4800, 4150, 2
         200, 4550, 4600, 5650, 2500, 9450, 6000, 9900, 500, 4100, 550, 8300, 2000, 5500, 6950, 5550,
         2300, 6350, 1750, 7100, 8950, 9650, 1300, 8300, 7350, 800, 9150, 4550, 3600, 3350, 8400, 265
         0, 4200, 8800, 6650, 7350, 5450, 350, 9150, 5600, 600, 8150, 1050, 5450, 8850, 2100, 2600, 40
         0, 1650, 3600, 6850, 7100, 5350, 1300, 6600, 6850, 1050, 3250, 1050, 5750, 3650, 8050, 4200,
         2550, 4900, 4900, 5750, 1250, 8400, 9050, 5900, 8700, 4950, 2950, 700, 1650, 9600, 9000, 850
         5500, 6950, 2350, 7950, 4900, 5150, 1100, 5350, 6700, 1550, 5100, 4900, 2550, 8550, 9850, 680
         0, 5950, 7350, 5450, 5300, 750, 2750, 1900, 4150, 3100, 1300, 8200, 4400, 6050, 7750, 9500, 6
         450, 6800, 6500, 1650, 6300, 1450, 6400, 7300, 3800, 350, 4600, 1700, 8300, 5000, 4550, 7550,
         4150, 6800, 6050, 5750, 1650, 150, 2200, 350, 2650, 2450, 3700, 550, 3300, 2600, 7100, 3450,
         3200, 2700, 9900, 5650, 4950, 2300, 3350, 1150, 3750, 2900, 3800, 1700, 5750, 4050, 3000, 725
         0, 7150, 6950, 5300, 6750, 4300, 3800, 6450, 4050, 9950, 4900, 2550, 3500, 3850, 2550, 6950,
         9100, 1700, 800, 750, 9000, 9700, 3800, 9500, 6550, 3900, 1500, 7500, 7350, 3800, 6350, 7550
         3700, 4700, 7400, 3000, 8350, 4050, 4650, 6700, 3100, 9750, 1800, 5250, 7700, 9750, 5950, 220
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         50, 1100, 6250, 6150, 3100, 800, 9050, 650, 3450, 7150, 3000, 6850, 9850, 2250, 8750, 4000, 4
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         7350, 2400, 150, 5200, 9300, 9650, 1950, 5300, 8650, 2900, 4800, 2800, 6150, 8950, 2600, 750,
         1500, 8900, 1100, 2400, 1750, 9250, 7200, 7350, 3950, 1350, 7950, 3900, 3700, 6250, 8750, 545
         0, 4200, 7750, 6850, 1150, 3050, 1700, 1600, 7850, 4100, 2900, 8550, 1950, 3350, 8350, 5650,
         350, 8450, 2900, 5250, 1550, 8300, 0, 8200, 0, 4450, 9550, 4500, 5900, 2000, 1050, 8400, 190
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         5050, 2900, 5200, 4350, 3950, 4050, 9350, 7100, 250, 7300, 450, 1450, 950, 7400, 4400, 4100,
         4400, 4950, 4400, 3750, 4450, 4100, 8500, 6250, 9200, 1600, 8400, 7500, 9550, 9150, 2800, 235
         0, 3150, 1750, 1150, 8600, 7050, 8400, 6850, 8750, 4450, 650, 3450, 8250, 3200, 5950, 7400,
            650, 2450, 100, 8550, 2150, 5400, 4850, 5450, 4700, 2050, 800, 6300, 3650, 2050, 1750, 475
           6650, 5450, 100, 2900, 4050, 9150, 8600, 6100, 1350, 6900, 950, 4150, 550, 8200, 1600, 745
         0, 7150, 7950, 1600, 6700, 1950, 5850, 2350, 4100, 2550, 3000, 4800, 400, 2900, 9850, 2750, 4
         650, 5250, 8600, 3500, 7600, 8100, 7850, 4750, 2850, 8000, 0, 6250, 5450, 3350, 550, 7000, 67
         50, 950, 3050, 7700, 9150, 950, 7900, 2650, 8800, 3950, 9100, 9350, 1800, 3700, 3100, 6950, 4
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         350, 400, 4250, 3450, 5150, 1500, 6500, 4750, 8900, 700, 7450, 5500, 3250, 4150, 2050, 5950,
                    50, 9800, 9200, 4700, 5650, 3850, 5600, 3100, 6300, 9150, 3250, 3500, 4750, 1500
         1600, 6150, 5300, 3900, 8850, 4300, 300, 8200, 7400, 500, 4600, 3100, 4050, 7000, 7800, 9350
         2450, 4450, 6350, 9000, 6350, 6900, 4450, 8650, 4000, 8250, 6300, 2000, 4300, 3250, 0, 1100,
         500, 1000, 6800, 400, 3400, 4650, 3300, 8100, 8200, 2250, 550, 5450, 3600, 6200, 1550, 450, 4
         950, 4150, 4700, 50, 650, 3150, 6800, 650, 2800, 3150, 9100, 7000, 7300, 6150, 2950, 5650, 25
         00, 100, 9150, 7800, 1650, 9350, 4350, 1300, 8400, 7100, 250, 2700, 5750, 950, 8750, 8400, 60
         50, 7600, 1300, 2900, 2450, 9200, 550, 7300, 9750, 6100, 8950, 0, 1600, 6650, 8300, 5350, 295
         0, 1800, 8100, 3850, 2050, 6900, 7300, 1300, 100, 8200, 1800, 5850, 2400, 450, 1200, 1650, 28
         50, 9250, 1250, 3250, 950, 1400, 250, 4200, 9400, 700, 9950, 1900, 9800, 3350, 3900, 3100, 10
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         450, 6750, 4100, 9850, 6250, 4500, 5500, 450, 4800, 2100, 1400, 350, 650, 2400, 900, 1150,
         00, 5000, 6100, 4200, 1850, 4150, 650, 2950, 6150, 9800, 7900, 9100, 2800, 8450, 100, 2500, 4
         650, 8100, 2300, 300, 950, 6300, 9250, 8250, 7400, 1600, 3900, 6400, 8650, 4100, 8550, 4900,
         1900, 3800, 1250, 9400, 8600, 5350, 600, 500, 6700, 1000, 2100, 5100, 9300, 5750, 350, 3450,
         4900, 2800, 9350, 6400, 6300, 3550, 5600, 7850, 9250, 950, 6450, 8850, 6200, 6700, 9800, 400
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         950, 350, 1250, 550, 9850, 3100, 8200, 2650, 9250, 5250, 8000, 3200, 6100, 5000, 1250, 5600,
         400, 5750, 500, 7300, 9950, 1900, 1650, 7500, 8500, 2800, 6450, 4900, 8000, 8000, 4150, 9350
         550, 1350, 4300, 4600, 9600, 2050, 5700, 3600, 5600, 6350, 5400, 5850, 650, 6200, 0, 7500, 72
         00, 4600, 2200, 6150, 2100, 7100, 1850, 1100, 2600, 3300, 4600, 4050, 6650, 8350, 9500, 9650,
         3500, 950, 9800, 6850, 5750, 7600, 2100, 5500, 4350, 5050, 9850, 0, 9500, 200, 4500, 4400, 70
         0, 7300, 6000, 8350, 7150, 1900, 2000, 5750, 7150, 9400, 4450, 8900, 250, 7100, 1150, 9650, 1
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         0, 6500, 7000, 1950, 3800, 7600, 2500, 9100, 9200, 9150, 4500, 8200, 5650, 100, 8100, 3000, 9
         450, 3800, 3300, 5550, 5100, 7600, 2950, 1000, 4950, 2800, 0, 3300, 1050, 5900, 1150, 8300, 1
         00, 100, 900, 9050, 9350, 9150, 750, 7350, 9550, 3000, 3550, 6600, 2400, 4150, 9800, 650, 760
         0, 9150, 4350, 1450, 9300, 5100, 4350, 950, 5050, 4500, 9050, 600, 400, 7000, 9650, 2700, 710
         0, 2950, 8150, 9850, 5400, 3300, 1750, 8250, 1650, 4200, 2250, 4200, 8350, 6250, 4250, 2300,
         6200, 6550, 1850, 2300, 9450, 1750, 4800, 4100, 6950, 4200, 6300, 9400, 6350, 4200, 8750, 475
         0, 1300, 6000, 3650, 5050, 2300, 800, 2350, 4000, 4100, 1050, 3050, 1600, 7250, 6950, 1450, 5
         500, 5600, 1950, 7000, 1000, 6150, 6900, 6250, 700, 9500, 3450, 9500, 1750, 8700, 4400, 5100,
         5200, 7100, 3800, 6250, 2500, 1050, 500, 6700, 1900, 750, 7000, 8700, 8250, 3400, 6600, 2300,
         500, 9100, 1500, 7850, 7400, 2500, 8200, 6000, 9300, 6550, 8550, 4950, 2000, 1800, 2750, 400
         0, 7000, 1450, 0, 3300, 9650, 6400, 1700, 2000, 4950, 1500, 8900, 6100, 1800, 6050, 700, 315
         0, 300, 1300, 1650, 6250, 6550, 1000, 1200, 5950, 3550, 6300, 8550, 1800, 8850, 8150, 6150, 9
         00, 950, 6600, 8850, 2550, 8350, 8100, 3750, 5600, 6950, 1450, 4550, 5450, 2750, 3950, 5150,
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         1700, 7350, 9700, 7850, 2350, 4150, 2000, 9650, 9150, 2550, 2200, 7500, 8850, 6550, 8800, 920
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         7800, 3600, 450, 7150, 8550, 7200, 5550, 500, 700, 6950, 7550, 4850, 2650, 8900, 7000, 8750,
         400, 4450, 1700, 7350, 6300, 6500, 5800, 9450, 3900, 2300, 2350, 900, 3700, 400, 8900, 1300,
         5350, 6250, 2000, 5150, 1300, 2250, 1750, 8600, 6400, 3550, 8550, 8700, 9100, 6750, 7300, 205
         0, 5800, 2650, 5950, 100, 1050, 5050, 7650, 9050, 7050, 8350, 900, 7100, 5000, 9850, 2950, 95
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         950, 7700, 250, 3400, 8900, 7800, 5950, 5100, 7100, 1200, 2650, 9150, 300, 2600, 5150, 9350,
         9100, 8750, 250, 8150, 7200, 500, 3400, 3450, 9800, 4300, 2900, 4250, 7650, 1500, 4200, 2400
         550, 2850, 9550, 7700, 100, 7200, 4000, 9150, 4150, 1700, 5400, 3850, 9450, 8150, 2600, 5550,
         5500, 1400, 5200, 2950, 7300, 2550, 8900, 3850, 350, 950, 1500, 7300, 450, 5450, 7050, 7350,
         6350, 6000, 1750, 1550, 2900, 4950, 5300, 4300, 1700, 3050, 9150, 1050, 6950, 4100, 1750, 75
         0, 9500, 650, 6850, 7600, 4950, 5150, 50, 5550, 4350, 6400, 1000, 7700, 7200, 7200, 5950, 710
         0, 9450, 5000, 2400, 9100, 4500, 4950, 9150, 6900, 7750, 5950, 7100, 8200, 6250, 7900, 7000,
         1350, 4850, 7050, 1300, 1650, 3200, 4250, 7550, 3150, 5550, 7500, 8600, 5350, 3050, 6750, 640
         0, 9850, 3400, 200, 8450, 4300, 850, 4150, 9000, 9800, 7350, 8600, 7500, 8100, 4000, 9050, 40
         00, 8250, 8600, 900, 3350, 2600, 5850, 7900, 100, 9300, 5250, 5250, 9350, 50, 3700, 4550, 580
         0, 2550, 0, 6300, 6400, 5600, 3550, 50, 4600, 9750, 700, 9500, 2800, 9000, 4700, 6650, 2150,
         5250, 7900, 4050, 5500, 3250, 8250, 1100, 2300, 8900, 4050, 9550, 1200, 8050, 8400, 3500, 945
         0, 9050, 9550, 4400, 7400, 6750, 5600, 1600, 3000, 3150, 6850, 3900, 9250, 6750, 8900, 2050,
         5200, 9850, 7300, 2550, 6750, 200, 6800, 4100, 750, 1300, 1600, 1000, 400, 7900, 4450, 7900,
         9900, 7650, 4950, 3650, 4300, 8100, 3650, 1250, 3050, 9750, 6450, 8200, 9550, 200, 4800, 370
         0, 8550, 9850, 2500, 1150, 2650, 9850, 9300, 3700, 950, 3650, 2900, 8600, 2050, 4350, 5400, 9
         650, 9850, 8400, 5700, 3700, 1700, 2150, 2350, 7200, 4600, 6400, 3900, 8200, 9500, 3800, 210
         0, 7450, 7400, 3000, 8550, 650, 700, 8700, 400, 2000, 2650, 6450, 6550, 6050, 7150, 8000, 540
         0, 3000, 2500, 8250, 450, 4100, 2650, 5350, 2250, 7050, 9300, 3600, 7800, 9800, 5700, 3850, 2
         050, 6600, 8200, 1600, 6400, 6500, 6500, 9900, 5000, 200, 8250, 1950, 1000, 550, 3850, 4650,
         8050, 2150, 400, 9300, 5350, 300, 6900, 8850, 3650, 1650, 4200, 6050, 1650, 3600, 4000, 5250,
         1300, 3550, 3350, 8450, 2050, 7150, 100, 9650, 9550, 1750, 9850, 4150, 5700, 2100, 9800, 150
         9300, 8800, 2550, 9300, 3700, 5350, 3200, 9400, 5000, 550, 8850, 6500, 3900, 9500, 1550, 535
           8750, 4300, 6900, 4200, 4400, 9100, 2950, 9700, 5100, 6550, 9600, 7200, 1400, 1650, 2600,
         950, 9800, 1850, 9850, 3700, 900, 5150, 1850, 5250, 6650, 1250, 2950, 7250, 2250, 4950, 900,
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