

1. Translate each of the expressions into Python code. Execute each expression in the shell, using reasonable input values where necessary. Make a session record of your interactions with the shell (save the interaction to a file) and submit it as your answer.

a)  $(3+4)(5)$

b)  $n(n-1)/2$

c)  $4\pi r^2$

d)  $\sqrt{r(\cos a)^2 + r(\cos b)^2}$

e)  $(y_2 - y_1) / (x_2 - x_1)$

```

1 import math
2
3 n = 6
4 r = 2
5 y = 2
6 x = 2
7 a = 15
8 b = 30
9 cosine = (r * (math.cos(a) ** 2 + r * (math.cos(b) ** 2)))
10 y2 = 10
11 y1 = 8
12 x2 = 9
13 x1 = 8
14
15 print((3 + 4) * (5))
16
17 print((n ** 2 - (n)) / 2)
18
19 print(math.pi * 4 * r ** 2)
20
21 print(math.sqrt(cosine))
22
23 print((y2 - y1) / (x2 - x1))
  
```

```

35
15.0
50.26548245743669
1.9273390395524679
2.0
  
```

Process returned 0 (0x0) execution time : 0.030 s  
Press any key to continue . . .

2. What do you think will happen when operands to integer division or remainder are negative? Write your hypothesis. Consider each of the 5 expressions below and predict the result. Then, try each one out to see if your prediction is correct.

a)  $-10 // 3 = -4$  Prediction 3.3R

b)  $-10 \% 3 = 2$  Prediction -0.3

c)  $10 // -3 = -4$  Prediction -3.3R

d)  $10 \% -3 = -2$  Prediction -2.9

e)  $-10 // -3 = 3$  Prediction 3.3

3. Write a program to calculate the cost/sq. inch of a circular pizza given the diameter and total price. Submit the code and your results for 8" personal and 23" monster pizzas.

```

1 import math
2
3 size = int(input("Input radius of the pizza: "))
4 pricesq = 0.13
5 area = int(math.pi*size**2)
6 print(area * pricesq)
7
  
```

```

Input radius of the pizza: 23
215.93

Process returned 0 (0x0) execution time : 3.853 s
Press any key to continue . . .
  
```

```

Input radius of the pizza: 8
26.13000000000003

Process returned 0 (0x0) execution time : 4.415 s
Press any key to continue . . .
  
```