```
# Problem 1
a=1.12
b=2.34
c=0.72
d=0.81
f=19.83

x=1+(a/b)+(c/f**2)
print(x)

s=(b-a)/(d-c)
print(s)

r=1/((1/a)+(1/b)+(1/c)+(1/d))
print(r)

y=a*b*(1/c)*(f**2/2)
print(y)
```

```
1.4804634732516433
13.555555555555541
0.2535712749946248
715.6765979999999
```

```
# Problem 2
import cmath

x=5+8j
y=-6+7j

u = x+y
print(u)
v=x*y
print(v)
w=x/y
print(w)
z=cmath.exp(x)
print(z)
r=cmath.sqrt(y)
print(r)
s=x*(y**2)
print(s)
```

```
(-1+15j)
(-86-13j)
(0.3058823529411765-0.9764705882352942j)
(-21.594119667068036+146.83378286556217j)
(1.2687679963832803+2.758581560992251j)
(607-524j)
```

```
# Problem 3
print((3+6j)*(-7-9j))
print((5+4j)/(5-4j))
print(3/2j)
```

```
(33-69j)
(0.21951219512195122+0.9756097560975611j)
-1.5j
```

```
# Problem 4
import numpy as np

a = np.exp(-2.1**3) + (3.47*np.log10(14)) + 287**(1/4)
print(a)

b = (3.4**7) * np.log10(14) + 287**(1/4)
print(b)

c = np.cos(4.12*np.pi/6)**2
print(c)

d = np.cos((4.12*np.pi/6)**2)
print(d)
```

```
8.09311298152669
6023.964366415807
0.3062422067739484
-0.05872703357180495
```

```
# Problem 5
x=6
z=(x<10)
print(z)

z=(x==10)
print(z)

z=(x>=4)
print(z)

z=(x!=7)
print(z)
```

```
True
False
True
True
```

```
# Problem 6
z=6>3+8
print(z)
```

```
z=6+3>8
print(z)
z=4>(2+9)
print(z)
z=(4<7)+3
print(z)
z=4<7+3
print(z)
z=(4<7)*5
print(z)
z=4<(7*5)
print(z)
z=2/5>=5
print(z)
```

```
False
True
False
4
True
5
True
False
```

```
# Problem 7
A = 'Data science professionals have promising career path'

print(A[8])
print(A[-1])
print(A[-6])
print(A[3:10])
a = 'promising' in A
print(a)
print(A.lower().replace('career path', 'future').lstrip('d'))
print(A.index('science'))
```

```
e
h
r
a scien
True
ata science professionals have promising future
5
```

```
# Problem 8
X=3
Y='4'
Z='5.6'
print(str(X)+Y+Z)
```

```
345.6
```

```
# Problem 9
X='56'
Y='23.5'
Z=str((int(X)+float(Y)))
print(Z)
```

```
79.5
```

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