HP35s - Complex Numbers

Note: If you would like to try using an HP calculator, you can download a free app on your cell phone

- Android: Free42. HP42s calculator (almost identical to an HP35s but out of production)
- Apple: ComplexRPN A generic RPN calculator which does complex numbers

Input a Complex Number

There are two ways to input a complex number

```
3
i
4
```

results in the X register being 3 + j4

```
3.0000 i4.0000
```

```
3
θ
60
```

results in the X register being $3\angle 60^0$

```
1.5000 i2.5981
```

Display a Complex Number

Rectangular Form:

```
DISPLAY
9 XiY
```

Polar Form:

```
DISPLAY
10 rθa
```

Magnitude:

```
ABS
```

Angle

```
ARG
```

Operations with Complex Numbers

HP35s has no problems working with complex numbers.

Sample Problems

Problem 1. Assume X = 3 + j4. Solve for Y:

$$Y(x) = \left(\frac{10(x+2)(x+20+j40)}{x(x+2+j15)} \right)$$

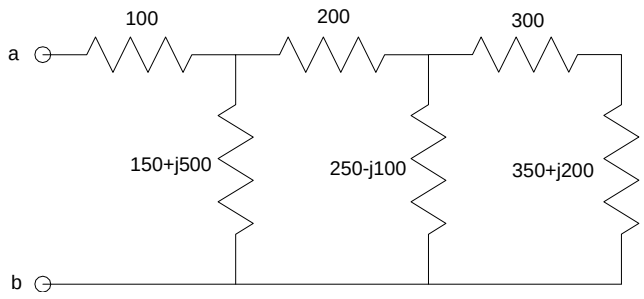
Solution:

```
key          x register contents
3i4          3.000 i4.000
STO X
10           10.000                  = 10
RCL X
2
+
x            50.000 i40.000          = 10(x+2)
RCL X
20i40
+
*            -610.000 i3120.000      = 10(x+2)(x+20+j40)
RCL X
/            426.000 i472.000        = 10(x+2)(x+20+j40)/x
RCL X
2i15
+
/            28.751 -i14.855         = 10(x+2)(x+20+j40)/x/(x+2+j15)
```

The answer is

28.7513 - j14.8549

Problem 2: Find the net resistance from A to B



Start from the right and start simplifying

350i200	*x register displays....*
ENTER	350.000 i200.000
300	
+	650.000 i200.000
1/X	
250i-100	
1/X	
+	
1/X	198.476 -i38.720
200	
+	398.476 -i38.720
1/X	
150i500	
1/X	
+	
1/X	258.227 +j135.493
100	
+	358.227 +j135.493