

# Graphing Rational Expressions

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The best window for graphing many rational expressions on a TI 82-83 graphing calculator is using [Zdecimal] on the [ZOOM] Menu. However, sometimes this window is too small. There are two ways of correcting this situation.

## 1. Saving a "friendly window."

Press [ZOOM] 4:[Zdecimal]

Now press [Window].

Change from Figure A's values, to those in Figure B.

```
WINDOW
Xmin=-4.7
Xmax=4.7
Xscl=1
Ymin=-3.1
Ymax=3.1
Yscl=1
Xres=1
```

Fig. A

```
WINDOW
Xmin=-9.4
Xmax=9.4
Xscl=1
Ymin=-6.2
Ymax=6.2
Yscl=1
Xres=1
```

Fig. B

Now press [Zoom]. Choose [MEMORY] 2:[ZoomSto]

```
MEMORY
1:ZBox
2:Zoom In
3:Zoom Out
4:ZDecimal
5:ZSquare
6:ZStandard
7:ZTrig
```

```
ZOOM MEMORY
1:ZPrevious
2:ZoomSto
3:ZoomRcl
4:SetFactors...
```

This will eliminate the false asymptotes when graphing rational expressions in many problems. These settings are now in memory. [Zoom Rcl] will recall them at any time.

## 2. Alternate method. Using Zoom Out.

Press [ZOOM] [MEMORY].

Choose [SetFactors].

Type in 2 for each.

```
ZOOM FACTORS
XFact=2
YFact=2
```

To eliminate the false asymptotes when graphing rational expressions in many problems, use **ZOOM**, **ZDecimal**, and then **Zoom Out**.