ClassPad II Help Series	The Tuition Centre, Claremont, WA	www.thetuitioncentre.com.au	Author	Charlie Watson
CP572	Simulating Confidence Interval Sample Proportion		Date	June 2016
			CPII OS	02.00.4000.0000

This simulation follows on from CP571.

Bernoulli distribution

40% of drivers pass test first time.
0=fail, 1=pass.

Investigate what fraction of 90% confidence intervals constructed from sample proportions (n=25) contain the known population proportion of 0.4?

The z-score for a 90% CI is 1.645.

Simulate a random sample of 25 learner drivers and use mean to determine sample proportion.

Calculate the associated standard error.

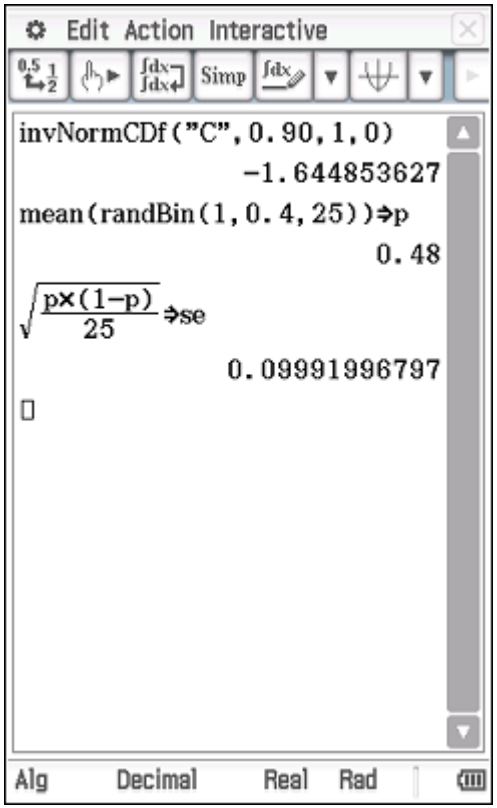
Calculate the lower and upper bounds of the 90% confidence interval.

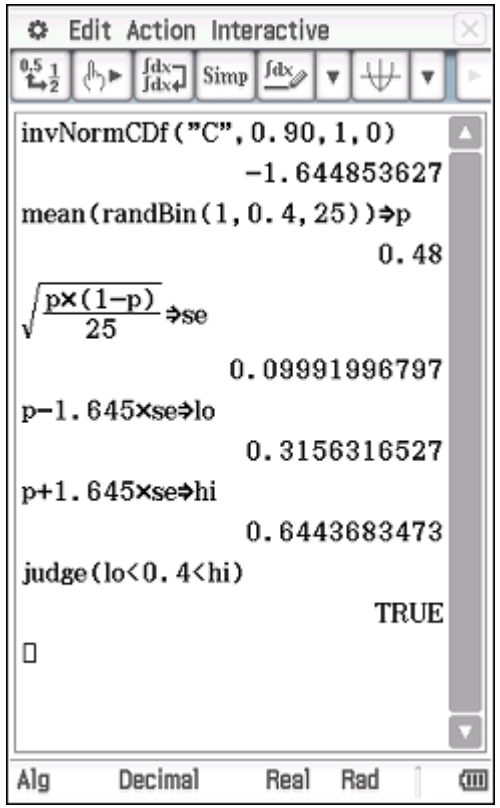
Judge whether the interval contains the known population proportion of 0.4.

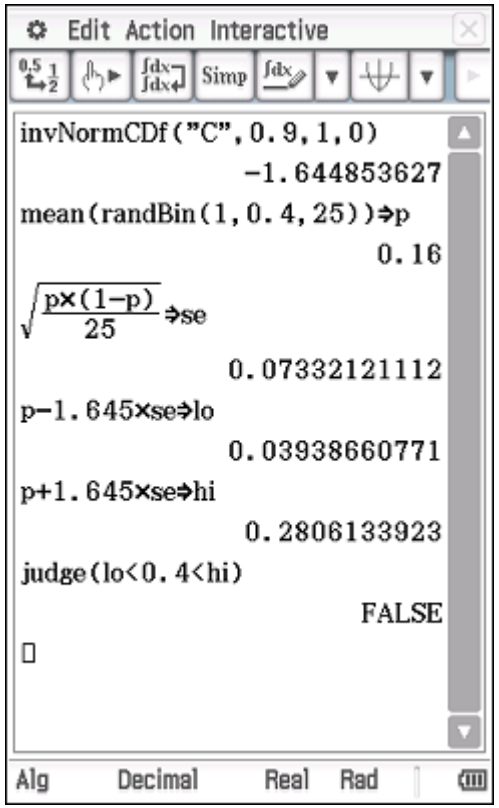
Tap back on the top line and press EXE to repeat the simulation...

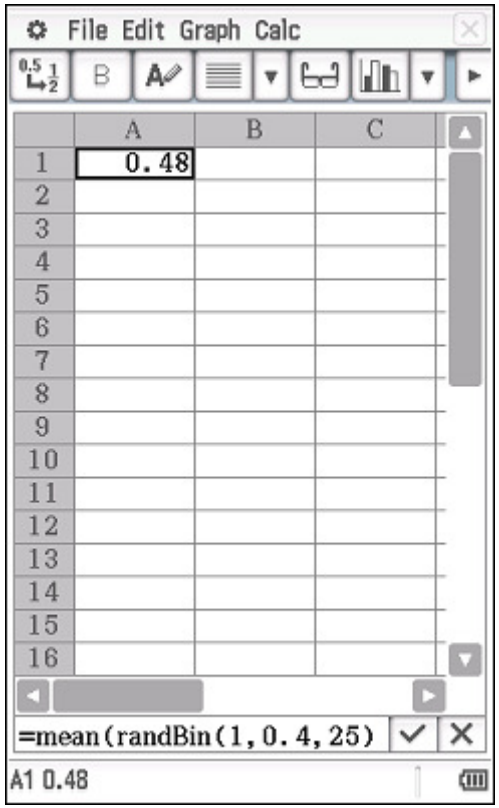
In Main, take a copy of the line to calculate the sample proportion and then start a new spreadsheet, pasting the formula into cell A1.

A1 =mean(randBin(1,0.4,25))





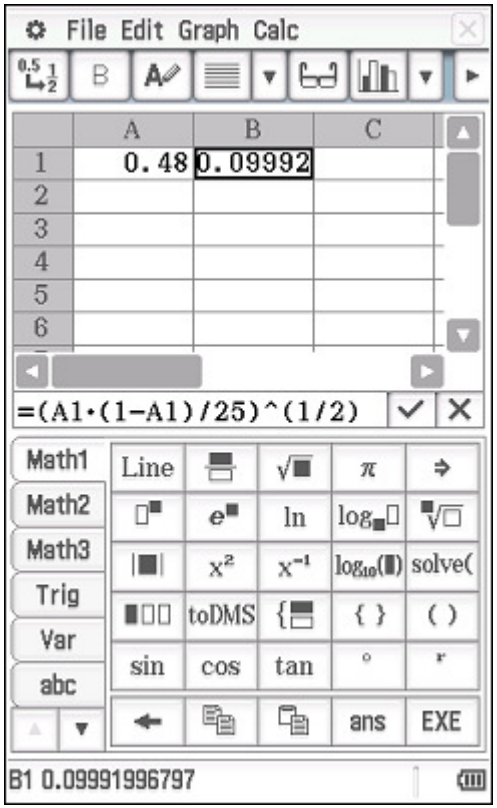




ClassPad II Help Series	The Tuition Centre, Claremont, WA	www.thetuitioncentre.com.au	Author	Charlie Watson
CP572	Simulating Confidence Interval Sample Proportion		Date	June 2016
			CPII OS	02.00.4000.0000

In cell B1 calculate the standard error based on the sample proportion.

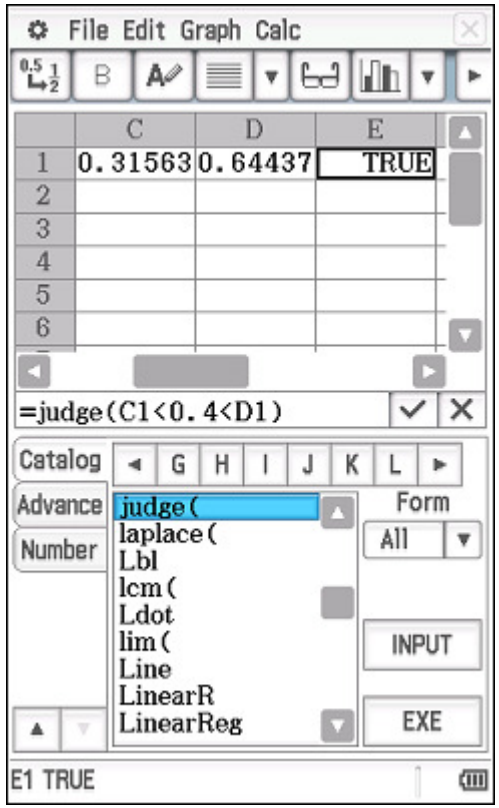
B1 =(A1*(1-A1)/25)^(1/2)



In cells C1 and D1 calculate the lower and upper bounds of the 90% confidence interval.

In cell E1 judge if the interval contains the population proportion.

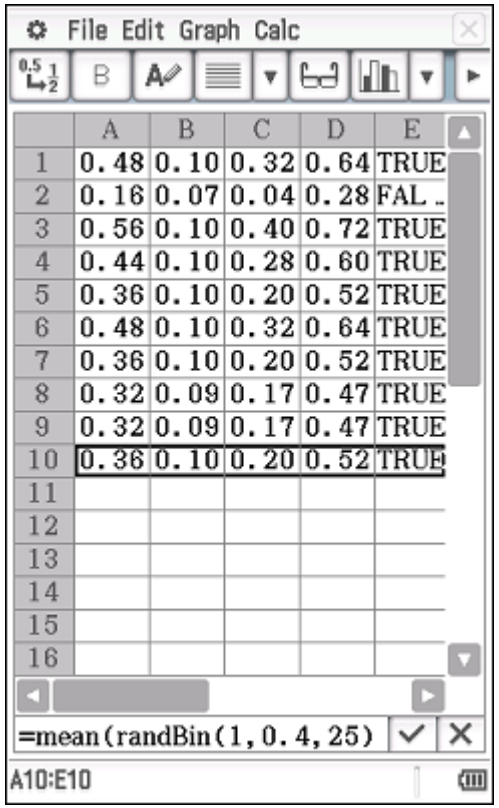
C1 =A1-1.645*B1
D1 =A1+1.645*B1
E1 =judge(C1<0.4<D1)



Adjust the column widths - select columns A to E, tap Edit, Format, Column Width and enter a width of 50.

Make ten copies of the first row.

We'd expect 9 out of 10 TRUE's for a 90% confidence interval.



Use File, Recalculate to repeatedly examine how many of the ten intervals contain the population proportion.

You may want to File, Save your spreadsheet.