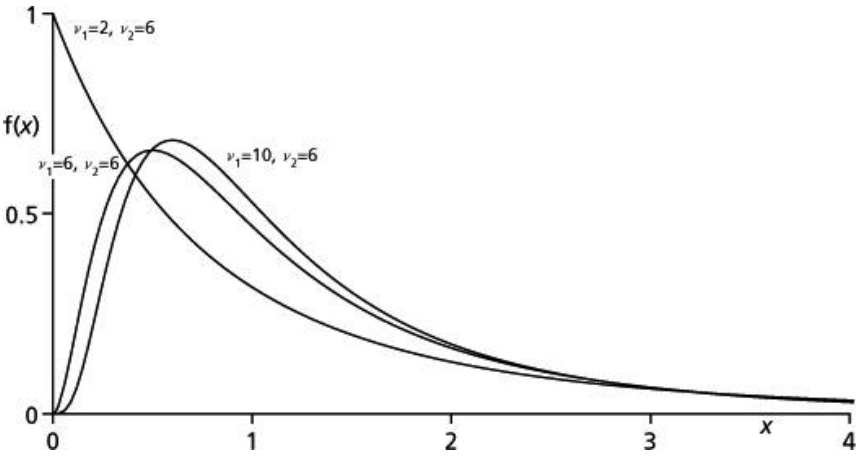
TI-84 F Distribution Function

The F distribution is a probability distribution that is an asymmetric distribution used to analyze certain types of hypothesis tests.

To use the F distribution in the calculator, go to the DISTR menu by hitting 2nd VARS. Scroll down to options #9 and #0 on this menu to find **Fpdf** and **Fcdf**. The **Fcdf** function is the distribution we will use for hypothesis tests. We need to specify two values for the region we will be testing, an interval bounded by a lower value (the value we obtain from our test statistic) and an upper value, such as 10^{99}. We will also need to specify the number of degrees of freedom we are using. The F distribution requires two sets of degrees of freedom, one for the numerator and one for the denominator. How to calculate the degrees of freedom (v) is specified by the test statistic: **Fcdf(lower, upper, numdf, denomdf)**.



Shown here is a graph of the F distribution for various sets of degrees of freedom. To convert a F test statistic to a probability, fill in syntax for the function as shown above.

Suppose that we have performed a hypothesis test and obtained the test statistic F=3.526, and our test has 21 degrees of freedom in the numerator, and 12 degrees of freedom in the denominator.

Click on #0 from the DISTR menu for **Fcdf(**, and followed by 3.526, comma , (above the 7), E 2nd , 99, comma , 21, comma , 12, then close the parentheses. The screenshot (top) shows what your screen syntax will look like without the StatWizard. Below it shows what it will look like with the StatWizard. Enter the values in the same order on the screen, 3.526 for "lower", E99 for "upper", 21 for "dfNumer" and 12 for "dfDenom".

When you select Paste the syntax on the screen above it will appear. Press ENTER to obtain the value. The value you obtain is the P-value associated with your test, the area under the tail of the distribution past the test statistic value. Compare this information to α to determine whether to accept or reject the null hypothesis H_0.

It is very uncommon to use the **Fpdf** function.

The most common tests the produce an F test statistic are not on the TI-84 calculator.

Fcdf(lower, upper, df)