

Chapter 7 / Example 6

Evaluating definite integrals

Evaluate the definite integrals.

a $\int_0^1 (3x^2 - 4x + 7) dx$ b $\int_0^\pi \cos \frac{x}{3} dx$ c $\int_{-1}^0 5(1-2x)^3 du$

Press **MENU** 1 **Run-Mat** to display the Run-Matrix screen for arithmetical calculations.

Press **F4** MATH **F6** \triangleright **F1** $\int dx$.

You will see an integral template.

There are three fields to complete in the template: one for each of the limits and one for the function you are integrating.

Enter $3x^2 - 4x + 7$ (there is no need to enter the parentheses) and the limits 0 and 1.

Press **EXE**.

Use the **▶** **◀** **▲** **▼** keys to navigate the template

$$\int_0^1 (3x^2 - 4x + 7) dx = 6.$$

Press **F1** $\int dx$ again.

Enter $\cos \frac{x}{3}$ using the fraction template **□/□** and the limits 0 and π .

Press **EXE** **□**.

$$\int_0^\pi \cos \frac{x}{3} dx = \frac{3\sqrt{3}}{2}.$$

Press **S+D** to change the exact answer to its decimal equivalent.

$$\int_0^\pi \cos \frac{x}{3} dx \approx 2.60.$$

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Press **F1** $\int dx$ again.

Enter $5(1-2x)^3$ and the limits -1 and 0 .

Press **EXE** **.**

$$\int_{-1}^0 5(1-2x)^3 dx = 50.$$

The calculator screen displays the definite integral $\int_{-1}^0 5(1-2x)^3 dx$. The result 50 is shown in the top right corner. The bottom of the screen shows the input $\int dx$ and $\Sigma($ with a right arrow button.