Piecewise functions

The environment *cases*

The best practices to define piecewise functions is to the environment *cases*.

$$\operatorname{abs}(x) = \begin{cases} -x & \text{if } x < 0 \\ x & \text{if } x \geq 0 \end{cases}$$

The manual way using *aligned*

Piecewise functions can also be done using a brace and the environment *aligned*.

$$\operatorname{abs}(x) = \left\{ \begin{aligned} -x &: x < 0 \\ x &: x \geq 0 \end{aligned} \right.$$

Within cases, *text* style math is used with results such as:

$$f(x) = \begin{cases} \int_0^{10} x\,dx & \text{if } x \geq 0 \\ \frac{1}{x} & \text{if } x < 0 \end{cases}$$

Display style may be used instead, by using the environment *dcases* with the package *mathtools*:

$$f(x) = \begin{cases} \displaystyle\int_0^{10} x\,dx & \text{if } x \geq 0 \\ \dfrac{1}{x} & \text{if } x < 0 \end{cases}$$

Often the second column consists mostly of normal text. To set it in the normal font of the document, the *dcases** environment may be used:

$$f(x) = \begin{cases} \displaystyle\int_0^{10} x\,dx & \text{when } x \text{ is even} \\ \dfrac{1}{x} & \text{when } x \text{ is odd} \end{cases}$$

The manual way using *array*

Piecewise functions can also be done using a brace and the environment *array*. This enables to control the alignment of the elements.

$$\operatorname{abs}(x) = \left\{ \begin{array}{ll} -x & : x < 0 \\ x & : x \geq 0 \end{array} \right.$$