

A symbol like the QED box for a proof is sometimes applied to other theorem-class objects. For example, a lozenge (\diamond) might be used to mark the end of a remark or example, so that there is no confusion if it ends at a page break. AMS document classes and the `amsthm` package do not support such use. The technique described here can be used to remedy that gap, without the need for such tactics as measuring the space left on the last line of a display, as was formerly the case.

When a proof ends with a list or display math, `\qedhere` can be applied to set the QED box in the proper location, i.e., flush right on the last line. A two-stage definition can be made to cater for the theorem-class objects; if more than one such object is to be served, a separate pair of definitions must be made for each one. See the code for details.

The methods shown here work best when display labels are at the left margin (the default for AMS document classes).

Proof. This is now proved by

$$a + b = c \quad \square$$

Sometimes an end marker is wanted outside of a proof or theorem-class object. In that situation, `\qed` works at the end of a text line. \square

A slight redefinition of `\qed` — `\xqed` — can be made to accept any symbol to be placed at the end of a line of text. \blacktriangle

Example 1. If the proper definitions have been established, the end-of-line marker is added automatically when the environment ends with ordinary text. \diamond

Example 2. If the theorem-class object ends with a one-line display, `\qedhere` adds the assigned symbol as it does for a proof.

$$c + d = e \quad \diamond$$

Example 3. Similarly if the object ends with a list.

- (1) First.
- (2) Second. \diamond

Example 4. With `\qedhere`, a QED box is positioned on the common baseline of a multi-line expression such as a case statement:

$$x + y = \begin{cases} -1 & \text{if } x < 2, \\ 0 & \text{if } x = 2, \\ 1 & \text{if } x > 2. \end{cases} \quad \diamond$$

Example 5. Insert `\par \vspace{-1.7\baselineskip}` between the display and `\qedhere` to reposition. (Vertical spacing may need adjustment.)

$$x + y = \begin{cases} -1 & \text{if } x < 2, \\ 0 & \text{if } x = 2, \\ 1 & \text{if } x > 2. \end{cases} \quad \diamond$$

The negative `\vspace` approach will even work if applied at the end of a non-floating `tabular` environment.

This T_EXnique was developed by Enrico Gregorio, whom we thank.

```

\documentclass{amsart}
\usepackage{amssymb}
\usepackage{verbatim}
\nofiles

%\newcommand{\xqedhere}[2]{%
%  \rlap{\hbox to#1{\hfil\llap{\ensuremath{#2}}}}}

\newcommand{\xqed}[1]{%
  \leavevmode\unskip\penalty9999 \hbox{}\nobreak\hfill
  \quad\hbox{\ensuremath{#1}}}

\theoremstyle{remark}
\newtheorem{XmpX}{Example} % \newtheorem establishes the object heading
\newenvironment{example} % this is the environment name for the input
  {\renewcommand{\qedsymbol}{$\lozenge$}}%
  {\pushQED{\qed}\begin{XmpX}}
  {\popQED\end{XmpX}}

```

```
\begin{document}
```

A symbol like the `\textsc{qed}` box for a proof is sometimes applied to other theorem-class objects. For example, a lozenge (`\lozenge`) might be used to mark the end of a remark or example, so that there is no confusion if it ends at a page break. AMS document classes and the `\texttt{amsthm}` package do not support such use. The technique described here can be used to remedy that gap, without the need for such tactics as measuring the space left on the last line of a display, as was formerly the case.

When a proof ends with a list or display math, `\verb+\qedhere+` can be applied to set the `\textsc{qed}` box in the proper location, i.e., flush right on the last line. A two-stage definition can be made to cater for the theorem-class objects; if more than one such object is to be served, a separate pair of definitions must be made for each one. See the code for details.

The methods shown here work best when display labels are at the left margin (the default for AMS document classes).

```

\begin{proof}
This is now proved by
\begin{equation*}
a + b = c \xqedhere
\end{equation*}
\end{proof}

```

Sometimes an end marker is wanted outside of a proof or theorem-class object. In that situation, `\verb+\qed+` works at the end of a text line.

`\qed`

A slight redefinition of `\verb+\qed+ --- \verb+\xqed+ ---` can be made to accept any symbol to be placed at the end of a line of text.

```
\xqed{\blacktriangle}
```

```
\begin{example}
```

If the proper definitions have been established, the end-of-line marker is added automatically when the environment ends with ordinary text.

```
\end{example}
```

```
\begin{example}
```

If the theorem-class object ends with a one-line display, `\verb+\qedhere+` adds the assigned symbol as it does for a proof.

```
\[ c + d = e \qedhere \]
```

```
\end{example}
```

```
\begin{example}
```

Similarly if the object ends with a list.

```
\begin{enumerate}
```

```
\item First.
```

```
\item Second. \qedhere
```

```
\end{enumerate}
```

```
\end{example}
```

```
\begin{example}
```

With `\verb+\qedhere+`, a `\textsc{qed}` box is positioned on the common baseline of a multi-line expression such as a case statement:

```
\begin{equation*}
```

```
  x + y = \begin{cases}
```

```
    -1 & \text{if } x < 2, \\
```

```
    0  & \text{if } x = 2, \\
```

```
    1  & \text{if } x > 2.\end{cases}\qedhere
```

```
\end{equation*}
```

```
\end{example}
```

```
\begin{example}
```

Insert `\verb+\par \vspace{-1.7\baselineskip}+` between the display and `\verb+\qedhere+` to reposition. (Vertical spacing may need adjustment.)

```
\[
```

```
  x + y = \begin{cases}
```

```
    -1 & \text{if } x < 2, \\
```

```
    0  & \text{if } x = 2, \\
```

```
    1  & \text{if } x > 2.\end{cases}
```

```
\]
```

```
\par \vspace{-1.7\baselineskip}
```

```
\qedhere
```

```
\end{example}
```

The negative `\verb+\vspace+` approach will even work if applied at the end of a non-floating `\verb+tabular+` environment.

This `\TeX{}`nique was developed by Enrico Gregorio, whom we thank.

```
\vspace{4\baselineskip}
\verbatiminput{\jobname.tex}
\end{document}
```

%% based on <http://tex.stackexchange.com/a/292371>