Test Document for `camnotes.sty`

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This is a test document for the `camnotes.sty` package. The latest version can be found at

`https://github.com/cardiffmaths/texmf/tex/latex/camnotes`

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1 Theorems

Theorem 1
This is the statement of the theorem.

Proof: Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

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□

1.1 Examples, exercises and quizzes

The `example`, `exercise` and `quiz` theorem types are defined in the preamble.

Example 2
This is an example.

Exercise 3
This is an exercise.

Quiz 4
This is a quiz.

Examples can have `solutions`.

Example 5
Find the integral of $f(x) = x$ over the interval $[0, 1]$.

Solution: $f(x)$ is bounded over $[0, 1]$ so

$$\int_0^1 x\,dx = \left[\frac{x^2}{2}\right]_0^1 = \frac{1}{2}$$

The same result be achieved using the `blankbox` environment, but without the heading.

Example 6
Find the integral of $f(x) = x$ over the interval $[0, 1]$.

$f(x)$ is bounded over $[0, 1]$ so

$$\int_0^1 x\,dx = \left[\frac{x^2}{2}\right]_0^1 = \frac{1}{2}$$

2 Question types (adapted from `exam.cls`)

`\ans` commands and `answer` environments can be inserted anywhere. Their visibility is controlled by the following package options.

`blankanswers`	print blank box
`noanswers`	print nothing

Here is an answer (it might not be visible):

Answer: Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

We can force answers to be included using `\answerson ... \endanswerson`. The following answer will always be included.

Answer: This is always included

We can force answers to be excluded using `\answersoff ... \endanswersoff`. The following answer will never be included.

Answer: This is never included

2.1 Questions, parts and subparts

Here is an exercise containing a `questions` environment, which itself contains a `parts` environment.

Exercise 7

1. First question.

   (a) First part.
   Answer: Answer to the first part.

   (b) Second part.

   (i) First subpart.
   Answer: Answer to the first subpart.

   (ii) Second subpart.
   Answer: Answer to the second subpart.

2. Second question.
   Answer: Answer to the second question.

2.2 Multiple choice and multiple answer questions

The following quiz has two multiple choice questions (`choices`), two multiple answer questions (`checkboxes`) questions, and a free-text question (default).

Quiz 8

1. Necessity is the mother of invention.

- ☑ **True**
- ◯ False

2. In what year did Columbus first cross the Atlantic?
   - ◯ 1490
   - ◯ 1491
   - ☑ **1492**
   - ◯ 1493

   Answer: In 1492, Columbus sailed the ocean blue.

3. Which of the following series converge?
   - ☐ $\sum_{n=1}^{\infty} \frac{1}{n}$
   - ☑ $\sum_{n=1}^{\infty} \frac{1}{n^2}$
   - ☑ $\sum_{n=1}^{\infty} \frac{1}{n^4}$

   Answer:
   - $\sum_{n=1}^{\infty} \frac{1}{n}$ diverges (this is the harmonic series).
   - $\sum_{n=1}^{\infty} \frac{1}{n^2} = \pi^2/6$.
   - $\sum_{n=1}^{\infty} \frac{1}{n^4} = \pi^4/90$.

4. Write a short essay on a topic of your choice.

   Answer: Anything sensible will do.

3 Blanks

3.1 Blank (inline)

The words ‘red’ and ‘’blue’ are enclosed in `\blank` commands. These are controlled by the `blanks` option.

Roses are red, violets are blue.

3.2 Blankboxes

Here is a blankbox.

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

3.3 Solutions

Here is a solution.

Solution: Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

3.4 Proofs

Here is a proof (might be invisible).

Proof: Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

3.5 Answers

Here is an answer (might be invisible).

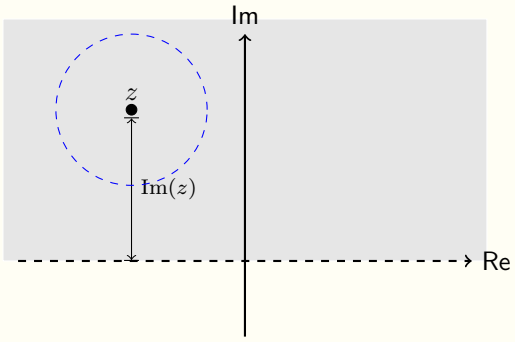
Answer: Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

As with any environment, these environments can be delimited as follows:

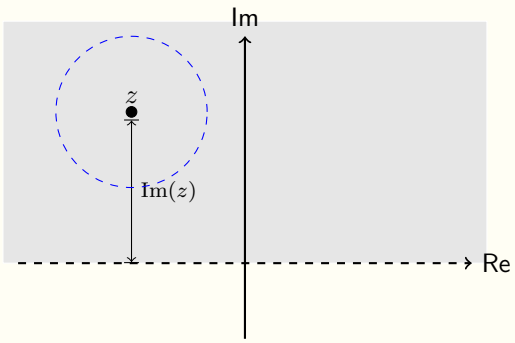
```
\blankbox
Content to be blanked out in student workbooks.
\endblankbox
```

4 Images

Here is an image on its own (never hidden).

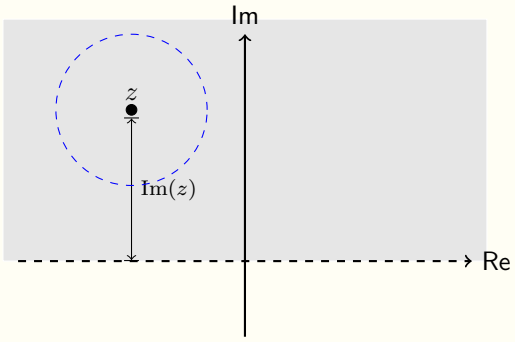


Here is the image in a blankbox.



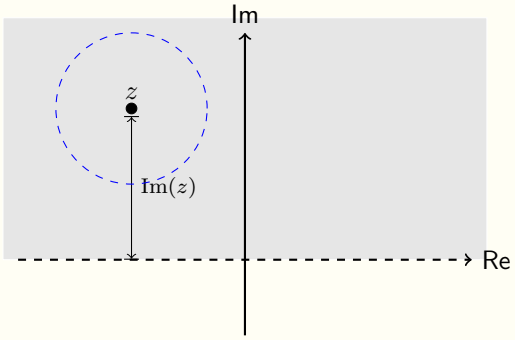
Here is the image in a solution.

Solution:



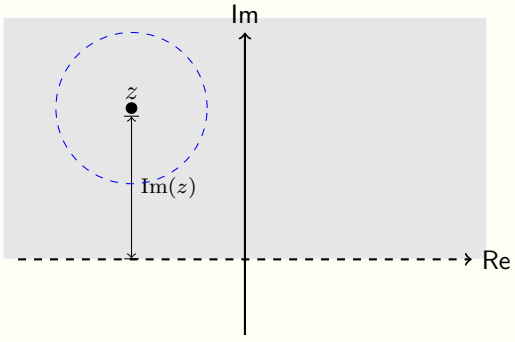
Here is the image in a proof (might be invisible).

Proof:



Here is the image in an answer (might be invisible).

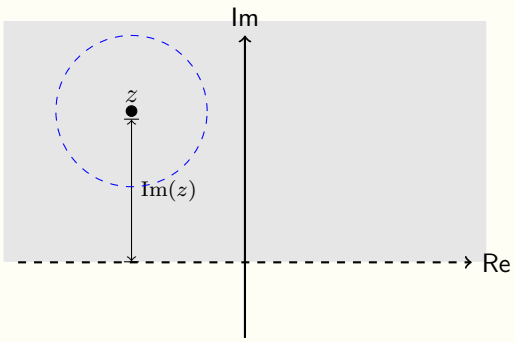
Answer:



4.1 Altgraphics

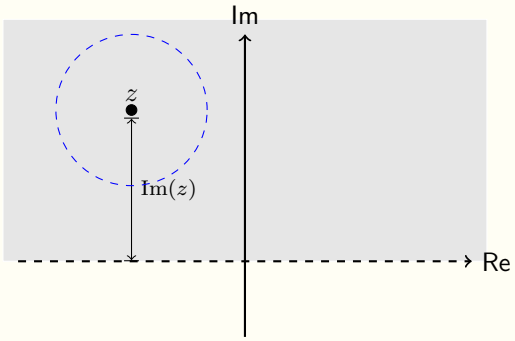
The `\altgraphics` command can be used to print a partial image in the student version and a complete image in the full version.

Here is the (partial) image in a blankbox.



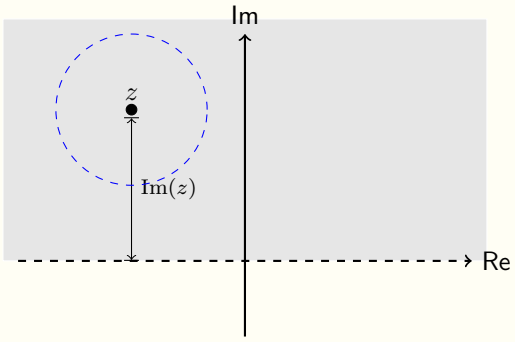
Here is the (partial) image in a solution.

Solution:



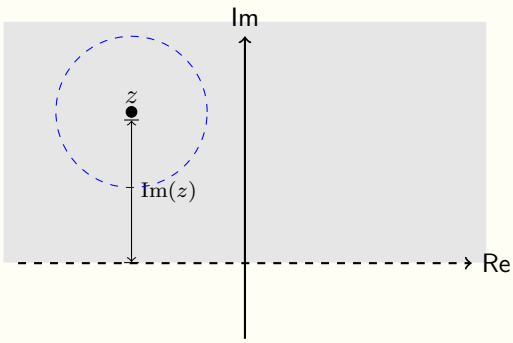
Here is the (partial) image in a proof (might be invisible).

Proof:



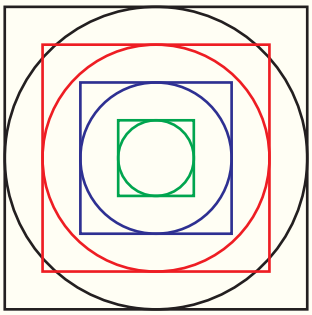
Here is the (partial) image in an answer (might be invisible).

Answer:



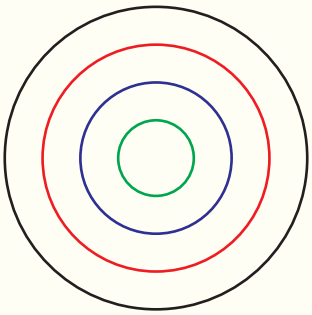
4.2 TikZ pictures

Here are some circles and squares. These are never hidden.



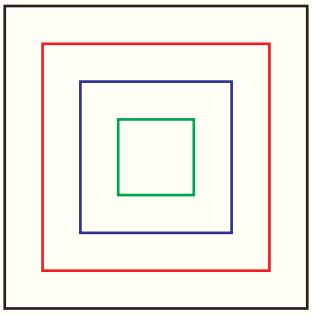
Here is a `blankbox` containig the circles. We have to include `\blanktikz` explicitly.

Here are some circles.



Here is an `answerbox` containig the squares. We have to include `\blanktikz` explicitly.

Answer: Here are some squares.



Here are some circles and squares. Back to normal?