# A 5-Minute Tour of Beamer's Simplest Features

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# Outline

# A Question from Grade School

(Illustrating BEAMER's \pause command.)

A couple of years ago, a fifth-grade teacher asked me to explain to her the reasoning behind the "invert and multiply" rule for dividing fractions, e.g.

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Let's try to find answers understandable by fifth graders (at least the more patient ones).

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If we give 1/3 of a cookie to each person, how many people can we feed with 1 cookie?
Obviously, the answer is 3.
So we've derived the "invert and multiply" rule in a special case:

$$1 \div \frac{1}{3} = 3$$

# Cookie Approach

But what if we give 2/3 of a cookie, not 1/3, to each person?
We're giving 2$\times$ as much per person.
So we can feed only 1/2 as many people.
So we feed $\frac{1}{2} \times 3 = \frac{3}{2}$.[1]
So we've derived the "invert and multiply" rule in another case:

$$1 \div \frac{2}{3} = \frac{3}{2}$$

[1] One person gets only a half share.

# Cookie Approach

Now, suppose we have only 4/5 of a cookie.
Then we can feed only 4/5 as many people, i.e.

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So we've derived the "invert and multiply" rule in the general case:

$$\frac{4}{5} \div \frac{2}{3} = \frac{4}{5} \times \frac{3}{2}$$

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# A Geometry Proof

(Illustrating BEAMER's \uncover command.)

**Theorem**

*The angles in a triangle sum to* $180^\circ$.

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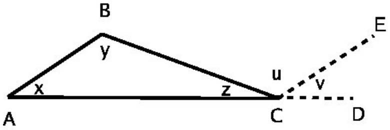
Plan: Extend AC past C to D. Draw CE parallel to AB.



Proof.

1. $u = y$

$\square$

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2. $v = x$ Consecutive interior angles of a transveral

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Proof.

1. $u = y$ — Alternate angles of a transversal.
2. $v = x$ — Consecutive interior angles of a transversal
3. $z+u+v = 180^\circ$

$\square$

Proof.

1. $u = y$ Alternate angles of a transveral.
2. $v = x$ Consecutive interior angles of a transveral
3. $z+u+v = 180^\circ$ ACD is a straight line.

$\square$

Proof.

| | |
|---|---|
| 1. u = y | Alternate angles of a transveral. |
| 2. v = x | Consecutive interior angles of a transveral |
| 3. z+u+v = 180$^\circ$ | ACD is a straight line. |
| 4. z+y+x = 180$^\circ$ | |

$\square$

Proof.

1. $u = y$ Alternate angles of a transveral.
2. $v = x$ Consecutive interior angles of a transveral
3. $z+u+v = 180^\circ$ ACD is a straight line.
4. $z+y+x = 180^\circ$ Substitution from Steps 1 and 2.

$\square$

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# More Advanced Features of BEAMER

- This tour just scratches the surface.

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- Advanced example: `http://latex-beamer.sourceforge.net/beamerexample1.pdf`.