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Before showing the video announced in the program, I would like to say a few words about the rationale for using television to teach mathematics.

The power of visual images to stir the deepest emotions has always been understood by artists.

Television places these images in motion together with music and special effects.

The impact of well-crafted televised images on the human mind has been exploited by entertainers, advertisers, and politicians since the advent of television.

Words and pictures are different mechanisms with a single purpose—the presentation of information.

Visualization—the visual representation of ideas, principles, or problems—has always played an important part in both teaching and learning mathematics, starting with geometric diagrams found on Babylonian clay tablets and ancient Egyptian papyri.

Visualization is even more effective when the images are in motion. Videos like those produced by *Project MATHEMATICS!*, described in this brochure, provide a highly efficient way of conveying information.

For example, we have three half-hour videos on sines and cosines that contain all the essential topics for a complete course in trigonometry.

However, the real value of video technology is not the *efficiency* by which it transmits information, but the *manner* in which the information is transmitted.

Visual images make a much greater impact than printed or spoken words. People tend to forget words they hear or read, but images are retained for a long time because they have emotional as well as intellectual appeal. This is especially true of moving images accompanied by music and sound effects.

In recent years, computer animation has been widely used, both on television and on the internet, to illustrate mathematical objects in motion and to show beautiful images such as fractals.

The combination of computer animation and video provides a powerful instructional aid that does several things at once:

- (1) it grabs the viewer's visual attention and maintains the viewer's involvement;
- (2) it capitalizes on the viewer's visual intuition;
- (3) it portrays a large quantity and diversity of information in a brief period of time;
- (4) it takes advantage of the viewer's sophistication in "reading" visual clues;
- (5) it presents mathematics in a rich cultural context.

Mathematicians are attracted to mathematics, not by beautiful images, but by the mathematics itself—surprising patterns, elegant theorems, ingenious proofs, and a whole world of exciting ideas that have inspired and challenged the human spirit for centuries.

All young children have natural curiosity, the prerequisite for learning mathematics. They love to solve puzzles and discover patterns. Mathematicians should build on this natural curiosity to show children and the general public that learning mathematics can be enjoyable and intellectually rewarding. This can be done by using the full power of video technology to reveal mathematics for what it is, not only understandable and exciting, but eminently worthwhile as well.

Televised images can inspire the general public to learn more about the mathematical world and about the people from various cultures who created it. It is a meaningful way to share some of the excitement mathematicians feel for their subject. As a consequence, the general public will better understand who mathematicians are and what they do.

Now let's look at the video on the Early History of Mathematics.