



The average cost per DVD, in dollars, for a company to produce x movies for rent is given by

$$A(x) = \frac{2x + 100}{x}$$

Use these questions to generate a discussion – do not answer every question – leave something for others to talk about:

Pick some values for x such as 1, 10, 1000, 5000 etc. What is happening as x increases? What does this indicate for the executives of this company? What would you do if this were your job? Would there ever be an undefined value for this problem? What does that mean in terms of this situation? What makes this problem applicable to what we've learned in Chapter 6?

More Information:

Many movie animation techniques are based on mathematics. Characters, background, and motion are all created using software that combines pixels into geometric shapes which are stored and manipulated using the mathematics of computer graphics.

Software encodes features that are important to the eye, like position, motion, color, and texture, into each pixel. The software uses vectors, matrices, and polygonal approximations to curved surfaces to determine the shade of each pixel. Each frame in a computer-generated film has over two million pixels and can have over forty million polygons. The tremendous number of calculations involved makes computers necessary, but without mathematics the computers wouldn't know what to calculate. Said one animator, “. . . it's all controlled by math . . . all those little X,Y's, and Z's that you had in school—oh my gosh, suddenly they all apply.”

For More Information:

Mathematics for Computer Graphics Applications, Michael E. Mortenson, 1999.