

Ups and Downs

The express elevators at One World Trade Center in New York are some of the fastest in the world. They can take you 1,280 feet to the observation deck in 60 seconds. That's about 23 miles per hour! Compare that to a typical elevator that travels between 3 and 5 miles per hour. Think about this during the 3-Act Mathematical Modeling lesson.



TUTORIALS Get help from *Virtual Nerd*, right when you need it.



KEY CONCEPT Review important lesson content.



GLOSSARY Read and listen to English/Spanish definitions.



ASSESSMENT Show what you've learned.

Additional Digital Resources



MATH TOOLS Explore math with digital tools.

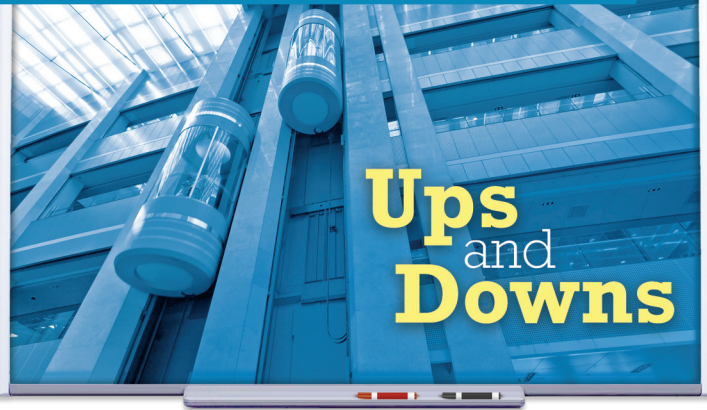


GAMES Play Math Games to help you learn.



ETEXT Interact with your Student's Edition online.

3-ACT MATH



3-Act Mathematical Modeling: Ups and Downs



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ACT 1

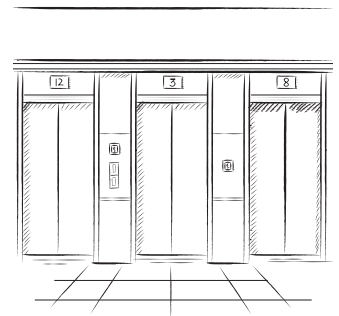
1. After watching the video, what is the first question that comes to mind?

2. Write the Main Question you will answer.

3. Make a prediction to answer this Main Question.

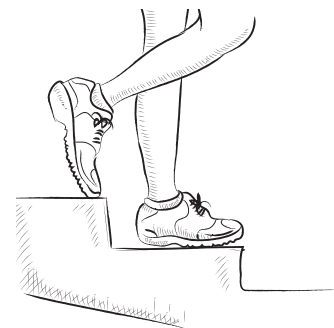
The person who wins took the

4. **Construct Arguments** Explain how you arrived at your prediction.



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5. What information in this situation would be helpful to know? How would you use that information?
6. **Use Appropriate Tools** What tools can you use to get the information you need? Record the information as you find it.
7. **Model with Math** Represent the situation using the mathematical content, concepts, and skills from this topic. Use your representation to answer the Main Question.
8. What is your answer to the Main Question? Does it differ from your prediction? Explain.



9. Write the answer you saw in the video.



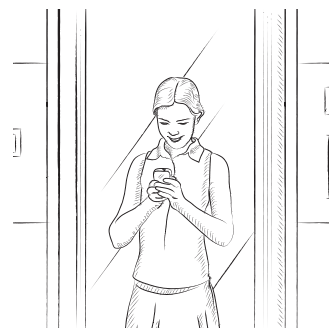
10. **Reasoning** Does your answer match the answer in the video? If not, what are some reasons that would explain the difference?

11. **Make Sense and Persevere** Would you change your model now that you know the answer? Explain.



Reflect

- 12. Model with Math** Explain how you used a mathematical model to represent the situation. How did the model help you answer the Main Question?



- 13. Reason Abstractly** A classmate solved the problem using equations with independent variable a and dependent variable b . What do these variables represent in the situation?

SEQUEL

- 14. Generalize** Write an equation or inequality to represent all numbers of flights for which the elevator is faster.

