

Algebra Essentials and Applications Internet Activity

ME1 Coaster Math Investigations

Let v be the maximum speed and h be the maximum height of a given roller coaster. We will look at Hercules and Mean Streak to see if we can find a relationship between v and h .

1. For Hercules, what is the ratio $\frac{v}{\sqrt{h}}$? Round your answer to the nearest hundredth.

2. For Mean Streak, what is the ratio $\frac{v}{\sqrt{h}}$? Round your answer to the nearest hundredth. Is it the same number as in Exercise 1? If not, why do you think it is different?

3. Let k represent the number you computed in Exercise 1. Then we have the equation $v = k\sqrt{h}$. Write the relationship in the form $v = k\sqrt{h}$ using the value of k that you found.

4. Using this equation, find the speed for Kumba, which has a height of 143 feet. How does this speed compare with the speed listed in the Roller Coaster Database?

5. Find the speed for Steel Force, which has a height of 200 feet. How does this speed compare with the speed listed in the Roller Coaster Database?

6. Find the speed that corresponds to a drop height of 300 feet.

7. If it were possible to build a coaster 1000 feet high, what would its speed be?
