

Suzhou Amusement Land

In Suzhou, a popular tourist attraction is the Suzhou Amusement Land. The park introduced a new roller coaster, and the number of visitors to the park has been increasing exponentially. In the first month after the roller coaster's opening, the park saw an increase in visitors by a factor of 1.5. However, due to seasonal changes, the number of visitors is expected to decrease by a decay factor of 0.7 each month after the peak season ends.



- If the park had 10,000 visitors in the first month after the roller coaster's opening, express the number of visitors, $V(t)$, as a function of time, t , in months during the growth period.
- Calculate the number of visitors after 3 months during the growth period.

If the peak season ends after the third month, express the number of visitors, $V(t)$, as a function of time, t , in months during the decay period.

- Calculate the number of visitors after 2 additional months into the decay period.

Model answer

1. The function for the number of visitors during the growth period is:

$$V(t) = 10,000 \cdot 1.5^t$$

2. After 3 months during the growth period, the number of visitors will be:

$$V(3) = 33,750$$

3. The function for the number of visitors during the decay period is:

$$V(t) = 33,750 \cdot 0.7^t$$

4. After 2 additional months into the decay period, the number of visitors will be:

$$V(2) = 16,538$$

