Module

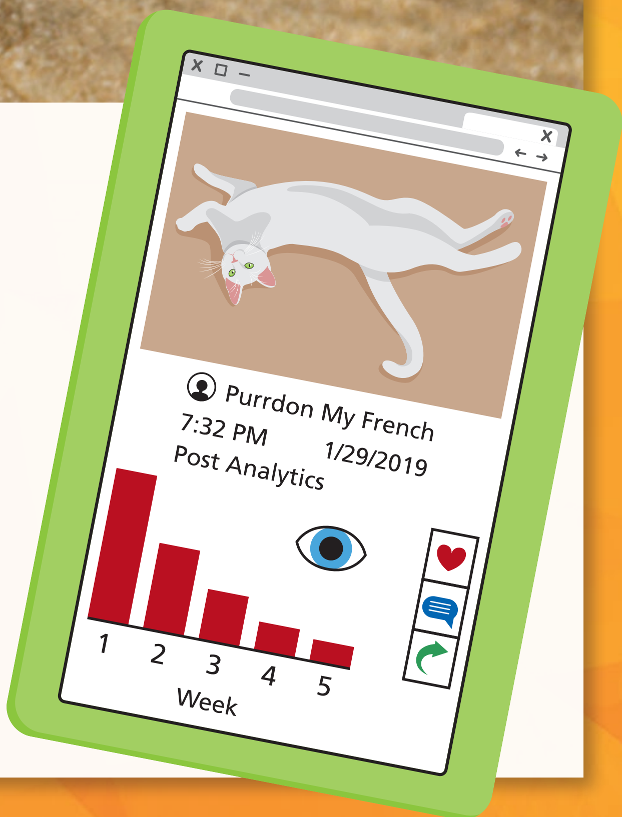
12

Relationships Among Exponential Functions

Module Performance Task: *Spies and Analysts*™

Social Media Half-Life

How can you tell when a post will no longer be seen?

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317

Connections to This Module

One sample solution might involve noting the number of views at different times and analyzing the results.

- Data that follow an exponential decay model shows a specific pattern in graphs. **(12.1 and 12.2)**
- Students can wait until the number of views falls by a factor of $\frac{1}{2}$ and use this to predict when the number will be reduced by half again. If the actual date or time at which the value is reached is greater than predicted, then decay is not keeping up with the initial drop off. **(12.2)**

Social Media Half-Life

Overview

This problem requires students to make assumptions to determine what would constitute the opposite of something "going viral"—views reducing until they are almost gone. Examples of assumptions:

- If the post falls to a given number of views in a certain time frame, it will have effectively "vanished."
- If the rate at which people view the post keeps decreasing, it will have to be undergoing "decay."

Be a *Spy*

First, students must determine what information it is necessary to know. This should include:

- how many people have viewed the post.
- how this number changes over time.

Students should recognize that "social media half-life" is an amorphous term without a strict mathematical definition to which they can appeal. They will have to explain what precise numbers would mark a threshold for the post "being over."

Be an *Analyst*

Help students understand that a graph of time versus views that would constitute a post having a "half-life" would not be a straight line, but instead be an exponential decay curve.

Alternative Approaches

In their analysis, students might:

- use algebraic methods they will learn in this module, as described at the left.
- use a set number of views within a certain time as the definition of "vanished."
- use any decreasing rate of decay as a measure of a post having a "social media half-life."