8.F Video Streaming

Alignments to Content Standards: 8.F.B.4

Task

You work for a video streaming company that has two monthly plans to choose from:

- Plan 1: A flat rate of $7 per month plus $2.50 per video viewed
- Plan 2: $4 per video viewed

a. What type of functions model this situation? Explain how you know.

b. Define variables that make sense in the context, and then write an equation with cost as a function of videos viewed, representing each monthly plan.

c. How much would 3 videos in a month cost for each plan? 5 videos?

d. Compare the two plans and explain what advice you would give to a customer trying to decide which plan is best for them, based on their viewing habits.

Solution

a. Each plan can be modeled by a linear function since the constant rate per video indicates a linear relationship.

b. We let $C_1$ be the monthly cost of Plan 1, $C_2$ be the monthly cost of Plan 2, and $V$ be the number of videos viewed in a given month. Then

$$C_1 = 7 + 2.5V$$

$$C_2 = 4V$$
c. 3 videos on Plan 1: \( C_1 = 7 + 2.5(3) = 14.50 \)

5 videos on Plan 1: \( C_1 = 7 + 2.5(5) = 19.50 \)

3 videos on Plan 2: \( C_2 = 4(3) = 12 \)

5 videos on Plan 2: \( C_2 = 4(5) = 20 \)

d. Plan 1 costs less than Plan 2 for 5 or more videos per month. A customer who watches fewer than 5 videos per month should choose Plan 2. A customer who watches 5 or more videos per month should choose Plan 1.