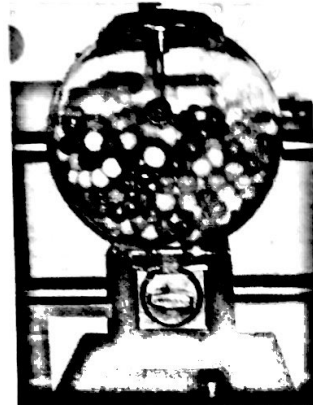


1.6 Something to Chew On

A Solidify Understanding Task

The Food-Mart grocery store has a candy machine like the one pictured here. Each time a child inserts a quarter, 7 candies come out of the machine. The machine holds 15 pounds of candy. Each pound of candy contains about 180 individual candies.



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<https://flic.kr/p/7WVWqZ/>

1. Represent the number of candies in the machine for any given number of customers. About how many customers will there be before the machine is empty?

When the machine is empty

$$y = -7x + 2700 \text{ - explicit}$$

$$180 \times 15 = 2700$$

0	2700
1	2693
⋮	⋮

↑
Starting amount of candy

$$0 = -7x + 2700$$

$$\begin{array}{r} +7x \quad +7x \\ \hline 7x = 2700 \end{array}$$

$$x \approx 385 \text{ customers}$$

recursive

$$f(n) = f(n-1) - 7$$

$$f(0) = 2700$$

2. Represent the amount of money in the machine for any given number of customers.

$$y = .25x$$

$$f(n) = f(n-1) + .25$$

$$f(0) = 0$$

0	0
1	.25
2	.50
3	.75

+ .25
+ .25

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3. To avoid theft, the store owners don't want to let too much money collect in the machine, so they take all the money out when they think the machine has about \$25 in it. The tricky part is that the store owners can't tell how much money is actually in the machine without opening it up, so they choose when to remove the money by judging how many candies are left in the machine. About how full should the machine look when they take the money out? How do you know?

$$y = .25(385)$$
$$\approx \$96.25$$

\$25 is about $\frac{1}{4}$ of the total amount of money when it candy machine is 75% full they should empty the money