

Contextual Equations & Inequalities

1. Your little sister, Amanda, does not like the hamburger patty on her McYawnald's burger. She has figured a way to hide the burger patty from your parents so they think that she eats all of her dinner. On the fifth of October, she had 12 hamburger patties hidden under the couch. Each day thereafter she hides two more hamburger patties under the couch.

a) Write an equation for the number of hamburger patties under the couch on any day.

$$h = 12 + 2(d - 5)$$

$h = \# \text{ hamburgers}$
 $d = \# \text{ days}$

b) Determine the number of burger patties under the couch on October 31st. $\rightarrow d = 31$

$$\begin{aligned} h &= 12 + 2(31 - 5) \\ &= 12 + 2(26) \\ &= 12 + 52 \end{aligned}$$

$$h = 64$$

There are 64 burger patties under the couch on October 31st.

c) What day of the month is it when there are 42 hamburger patties under the couch? $\rightarrow h = 42$

$$42 = 12 + 2(d - 5)$$

$$\begin{array}{r} -12 \\ -12 \end{array}$$

$$\frac{30}{2} = \frac{2(d - 5)}{2}$$

$$\begin{array}{r} 15 = d - 5 \\ +5 \quad +5 \end{array}$$

$$d = 20$$

on October 20th, there will be 42 hamburger patties under the couch.

2. You post a new video on Snapgram. On the 3rd day it had 40 views. Each day thereafter it gets an additional 12 views

a) Write an equation for the number of views on any day.

$$v = 40 + 12(d - 3)$$

$v = \# \text{ views}$ $d = \# \text{ days}$

b) How many days will have passed before your video has more than 250 views? Write an inequality and solve it to justify your answer.

$$\# \text{ views} > 250$$

$$40 + 12(d - 3) > 250$$

$$\begin{array}{r} -40 \\ -40 \end{array}$$

$$12(d - 3) > 210$$

$$12d - 36 > 210$$

$$\begin{array}{r} +36 \\ +36 \end{array}$$

$$12d > 246$$

$$\frac{12d}{12} > \frac{246}{12}$$

$$d > 20.5$$

The video will have more than 250 views after at least the first 21 days have passed.