0. (a) Evaluate $3^2 - 2^3$.

(b) Let t=TNYWR.
   Determine the volume of a cube of side length t.

(c) Let t=TNYWR.
   If the point (a, t) is on the line $x + y = 1$, determine the value of a.

Relay # 0 (a)

Relay # 0 (b)

Relay # 0 (c)

1. (a) An *arithmetic sequence* is a sequence in which each term after the first is obtained from the previous term by adding a constant. For example, 3,5,7,9 is an arithmetic sequence with four terms.
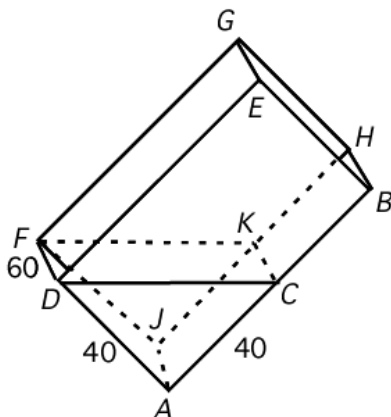
What is the 13th term of the arithmetic sequence $3, 14, 25, 36, 47, 58, \ldots$?

(b) Let t=TNYWR.

The point (t, k) is on the line $3x - 4y - 5 = 0$. What is the value of k?

(c) Let t=TNYWR.

In the diagram, a fish tank in the shape of a rectangular prism $ABEDFJHG$ is tipped so that edge AJ rests on a table. Water fills the tank up to surface $FKCD$. The length of AB is t, and $FD = 60$, and $DA = AC = 40$.

If the tank is set to rest on surface $HBAJ$, what will the depth of the water be?
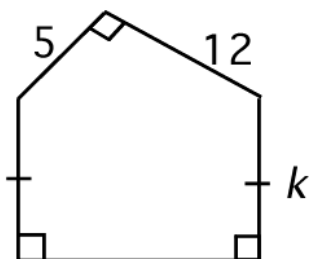
Relay # 1 (a)

Relay # 1 (b)

Relay # 1 (c)

2. (a) Evaluate
$$2 + \cfrac{2}{2 + \frac{2}{2+2}}.$$

(b) Let t=TNYWR. Let $k = 5t$. Determine the perimeter of the figure.

(c) Let t=TNYWR. The average of a set of ten numbers is t. If one of the numbers is removed, the average of the remaining nine numbers is $t - 1$. What number was removed?
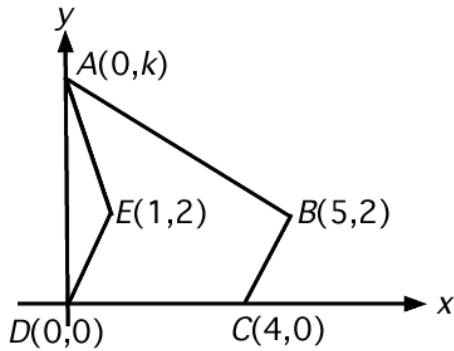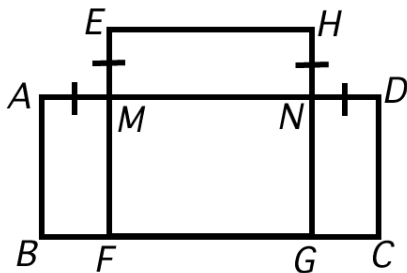
Relay # 2 (a)

Relay # 2 (b)

Relay # 2 (c)

3. (a) The sum of 17 consecutive even integers is 1530. What is the largest of these integers?

(b) Let t=TNYWR. Let $k = t - 90$. Determine the area of the pentagon $ABCDE$.

(c) Let t=TNYWR. $EFGH$ is a square and $ABCD$ is a rectangle. The area of $EFGH$ equals the area of $ABCD$. Also, $AM = EM = HN = DN = t$. Determine the length of BC.

Relay # 3 (a)

Relay # 3 (b)

Relay # 3 (c)