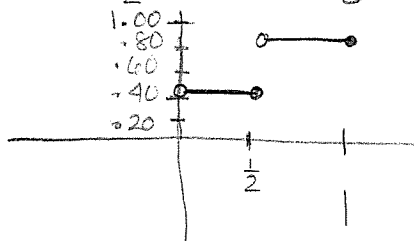


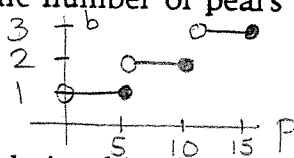
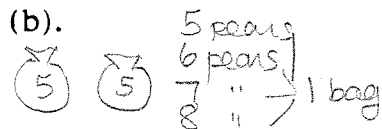
Name KEY
 Advanced Algebra (H) Step Functions

In 1985, the airmail postage from the United States to Europe was 44¢ per $\frac{1}{2}$ oz. This means that the cost of a letter that weighed $\frac{1}{2}$ oz or less was 44¢. The cost of a letter that weighed a little more than $\frac{1}{2}$ oz. was 88¢. The cost remained 88¢ until the weight was over 1 oz. Graph this weight-cost relationship.

$x = \text{weight of letter (oz)} \quad 0 < x \leq \frac{1}{2} \Rightarrow y = 44$
 $y = \text{cost of letter (¢)} \quad \frac{1}{2} < x \leq 1 \Rightarrow y = 88$



2. A packaging machine in a supermarket puts 5 pears in each bag. Draw a graph that shows the relationship between the number of pears (p) and the number of bags



$$b = \begin{cases} 1 & 0 < p \leq 5 \\ 2 & 5 < p \leq 10 \\ 3 & 10 < p \leq 15 \end{cases}$$

Write an equation that describes the relationship. Use [] notation. or $f(x) = \left\lfloor \frac{x+4}{5} \right\rfloor$

not a bot
 $\left\lfloor \frac{p}{5} \right\rfloor \Rightarrow 0 \rightarrow 1$
 $\left\lfloor \frac{-p}{5} \right\rfloor$
 works always

1. When Cory Graff is asked his age, he always answers with his age on his most recent birthday. Let x represent his actual age and y represent the age he gives.

$15\frac{1}{2} \Rightarrow 15$ $16 \Rightarrow 16$
 $4\frac{1}{4} \Rightarrow 4$ $17\frac{3}{8} \Rightarrow 17$
 $y = [x]$

2. Whenever Susan Rains accumulates 50 pennies, she puts them in a coin wrapper. Let x represent her number of pennies and y represent the number of wrappers used.

$x=50 \quad y=1$ $x=90 \quad y=1$
 $x=60 \quad y=1$ $x=100 \quad y=2$
 $x=80 \quad y=1$
 $y = \left\lfloor \frac{x}{50} \right\rfloor$

greatest integer

$1 \Rightarrow [1-m] = [2] = 1$
 $3 \Rightarrow [1-m] = [2] \quad C=3$
 $4 \Rightarrow [1-m] = [3] \quad C=4$
 $5 \Rightarrow [1-m] = [4] \quad C=6$

3. The cost C in dollars of making a call lasting m minutes during the day from Chicago, Illinois, to Paris, France, is given by the formula $C = 1.71 - 1.08 [1 - m]$.

a. Evaluate this formula when $m = 2, 7.5,$ and 10 .

b. Graph this equation for $0 < m \leq 10$.

a) $C = 1.71 - 1.08 [1 - 2]$ $\Rightarrow 1.71 - 1.08(-1)$ b)
 $C = 1.71 - 1.08(-1)$ $= 2.79$
 $C = 1.71 - 1.08 [1 - 7.5]$
 $= 1.71 - 1.08(-6.5)$ $C = 1.71 - 1.08 [1 - 10]$
 $= 1.71 - 1.08(-9)$ $= 11.43$

