

Evaluation 4

1. For each of the following step functions, determine

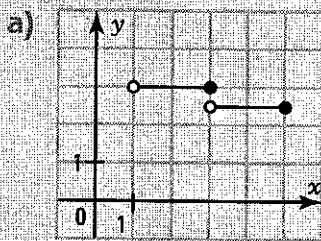
1. the step length and its type (●—○) or (○—●).
2. the counterstep height
3. the variation of the function.
4. the set S of zeros.

a) $y = -3\left[\frac{1}{4}(x - 1)\right] + 6$

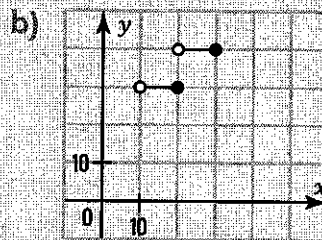
b) $y = -2\left[-\frac{2}{3}(x + 1)\right] + 5$

1. length: 4; ●—○ 2. height: 3 1. length: $\frac{3}{2}$; ○—● 2. height: 2
 3. decreasing function 4. S = [9, 13[3. increasing function 4. S = ∅

2. For each of the step functions below, only two steps are represented. Find a rule and the zeros for each function.



$y = 0.5[-0.5(x - 3)] + 3$
S =]13, 15]



$y = -10[-0.1(x - 20)] + 30$
S =]-20, -10]

3. The cost of parking in a garage is described by the rule $y = 3 + 2.5\left[\frac{x}{60}\right]$ where x represents the parking time, in minutes, and y represents the cost in dollars.

a) Describe in your words how the cost is calculated.

A minimal cost of \$3 is charged for a parking time of less than 1 h. Then, there is an additional charge of \$2.50 for every 60 minutes of parking time.

b) What is the cost of parking 2 h 15 min? **\$8**

c) What could the parking duration be if it costs \$10.50? **$180 < x < 240$**

4. A sugar refinery sets the price y , in dollars, according to the quantity x , in kilograms, of sugar ordered. The price is described by the rule $y = -0.1\left[\frac{x}{100}\right] + 2$.

a) What is the selling price for an order of 325 kg?

\$1.70

b) Explain in your words how the selling price is calculated.

There is a charge of \$2 for an order of less than 100 kg. The base price is then decreased by 10¢ for every additional 100 kg of sugar ordered.