

Step Functions Worksheet

1) Rewrite  $f(x) = \lceil x \rceil$  as a piecewise linear function from  $6 \leq x < 8$ .

*Skip for now*

2) Evaluate

a)  $\lceil 5.7 \rceil = 6$

c)  $\lceil 3\pi \rceil = 9$

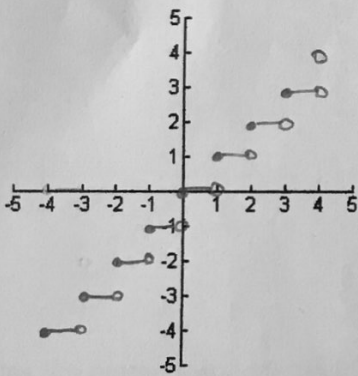
e)  $\lceil 0.2 \rceil = 1$

b)  $2\lceil \sqrt{5} \rceil = 4$

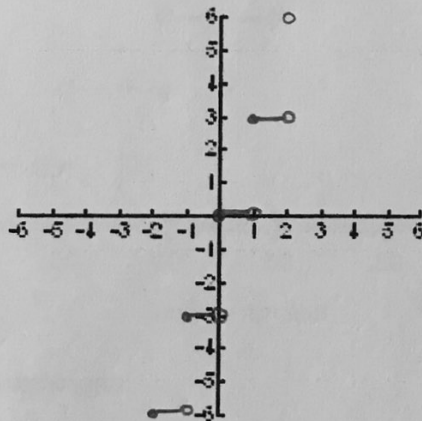
d)  $\lceil -6.1 \rceil = -6$

f)  $5\lceil -9.1 \rceil = -50$

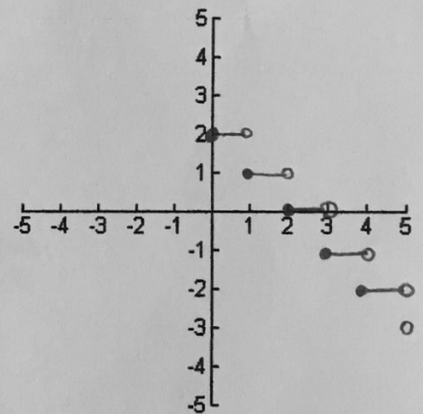
3) Sketch the graph of  $f(x) = \lceil x \rceil$  from  $-4 \leq x < 4$



4) Sketch the graph of  $f(x) = 3\lceil x \rceil$  from  $-2 \leq x < 2$



5) Sketch the graph of  $f(x) = 2 - \lceil x \rceil$  from  $0 \leq x < 5$

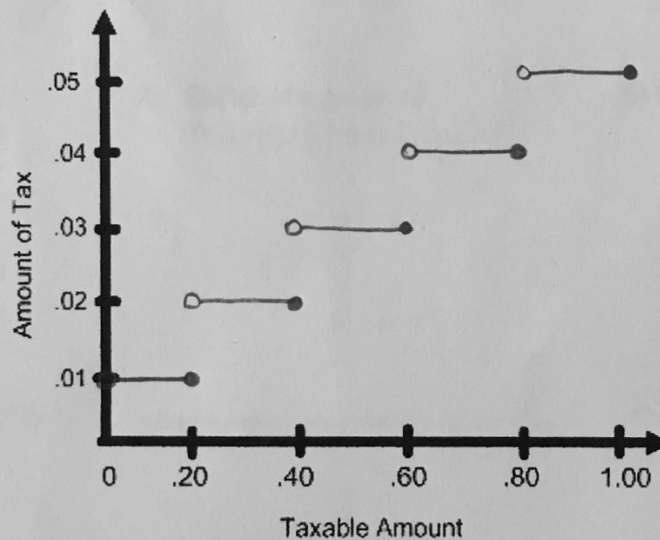


You are selling candy bars. The taxable amounts and tax imposed up to \$1 are shown below.

- For amounts between \$0.01 and \$0.20, the tax is \$0.01.
- For amounts greater than \$0.20 and less than or equal to \$0.40, the tax is \$0.02.
- For amounts greater than \$0.40 and less than or equal to \$0.60, the tax is \$0.03.
- For amounts greater than \$0.60 and less than or equal to \$0.80, the tax is \$0.04.
- For amounts greater than \$0.80 and less than or equal to \$1.00, the tax is \$0.05.

6) Complete the graph to show the tax imposed on the candy bars.

A Tax Table for Amounts up to \$1



Use the graph to answer the following questions:

7) A candy bar costs \$0.55. What is the total cost with tax?

$$\$0.55 + \$0.03 = \$0.58$$

8) Your aunt purchased three candy bars at \$0.55 a piece. What is the total cost with tax?

$$(\$0.58) \times 3 = \$1.74$$

9) Someone purchased 4 candy bars at \$0.55 a piece. They gave you \$2 and a quarter. Is this enough money to cover the candy bars and the tax? Explain your answer.

$$(\$0.58) \times 4 = \$2.32$$

No b/c the total is \$2.32. \$2.25 is not enough