



PIECEWISE FUNCTIONS WORKSHEET #2

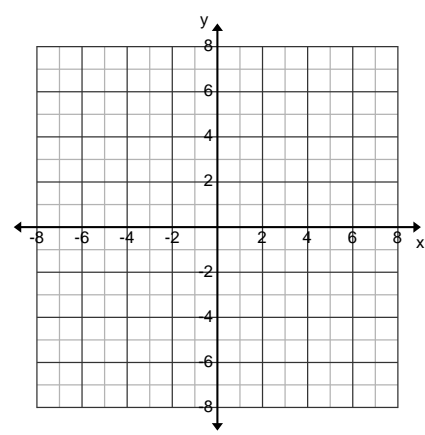
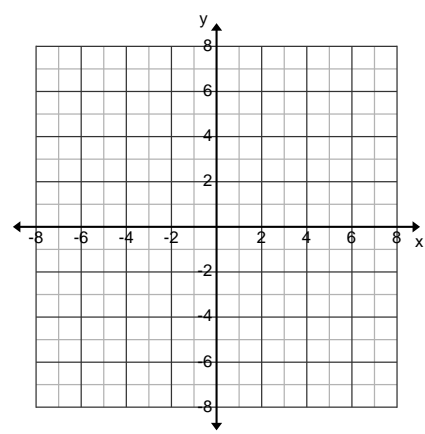
Evaluate the following for $f(x) = \begin{cases} 2x^2 - 3, & x \leq 0 \\ 4x - 1, & 0 < x < 3 \\ -3, & x \geq 3 \end{cases}$

- 1) $f(5)$ 2) $f(-2)$ 3) $f(3)$ 4) $f(2)$

Graph the following piecewise functions.

5) $f(x) = \begin{cases} -1, & x \leq -1 \\ 1, & -1 < x \leq 1 \\ x, & x > 1 \end{cases}$

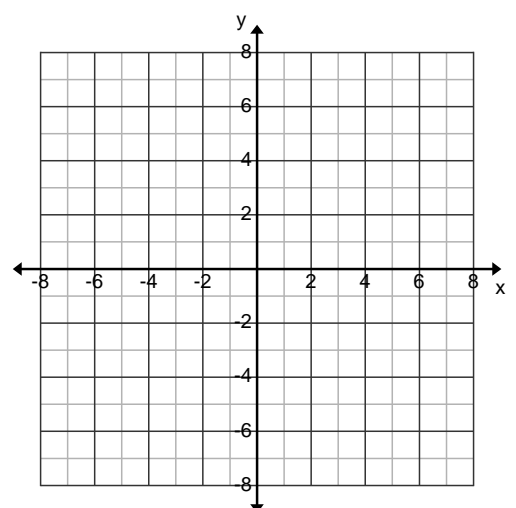
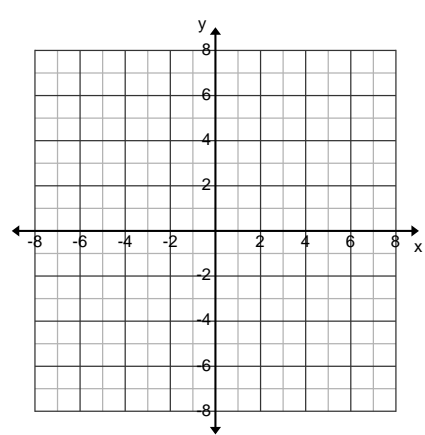
6) $f(x) = \begin{cases} -3x - 4, & x \leq -2 \\ x + 1, & x > -2 \end{cases}$



7) $f(x) = \begin{cases} 5 & x < -2 \\ |x| + 3, & -2 \leq x \leq 4 \\ x, & x > 4 \end{cases}$

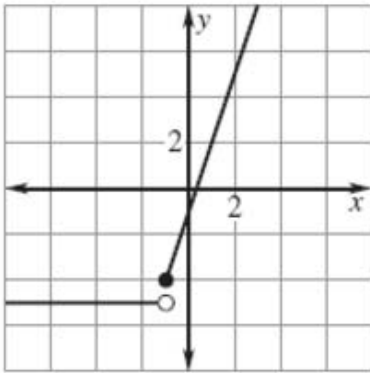
8) Sketch the graph of $f(x) = \lfloor x \rfloor - 2$ from

$0 \leq x < 5$

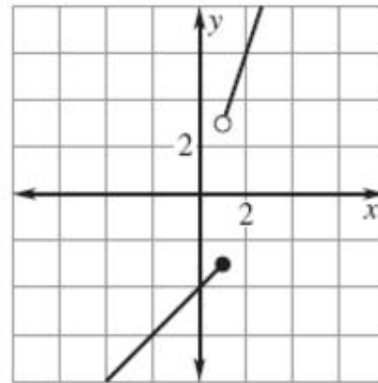


Write equations for the piecewise functions shown below. Assume each tick mark is one unit.

9)



10)



11) 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.

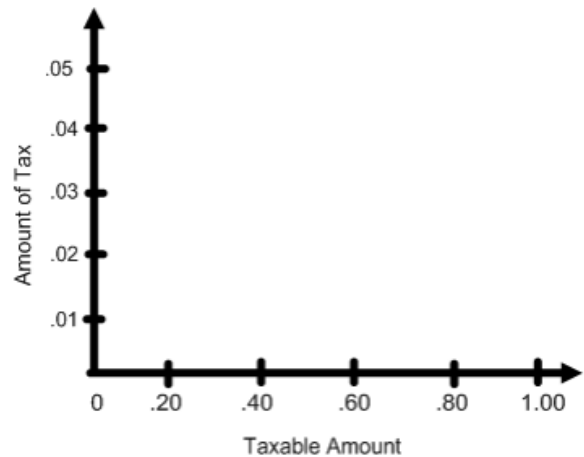
a) Complete the graph to show the tax imposed on the candy bars.

Use the graph to answer the following questions:

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

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

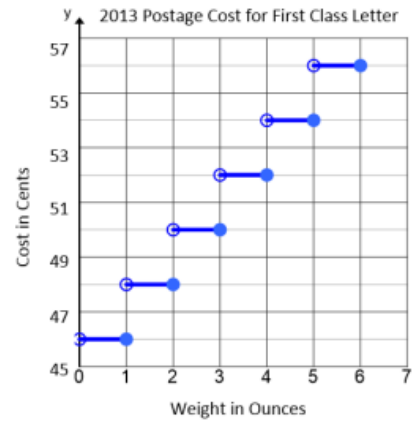
A Tax Table for Amounts up to \$1



d) 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.

12) a) Use the graph to complete the table below.

Weight in ounces, x	2	2.2	3	3.5	4
Cost of postage, $C(x)$					



b) Write a formula involving step functions that represents the cost of postage based on the graph shown above.

c) If it cost Trina \$0.54 to mail her letter, how many ounces did it weigh?

13) The admission rates at an amusement park are as follows:

Children under 5 years old: free

Children between 5 years and up to but not including 12 years: \$10.00

Children between 12 years and up to but not including 18 years: \$25.00

Adults (18 years old and older): \$35.00

a) Write a piecewise function that gives the admission price for a given age.

b) Graph the function.

14) If you earned up to \$113,700 in 2014 from an employer, your social security tax rate was 6.2% of your income. If you earned over \$113,700, you paid a fixed amount of \$7,049.40.

a) Write a piecewise linear function to represent the 2014 social security taxes for incomes between \$0 and \$500,000.

b) How much social security tax would someone who made \$50,000 owe?

c) How much money would you have made if you paid \$4,000 in social security tax in 2014?

d) What is the meaning of $f(150,000)$? What is the value of $f(150,000)$?