

# DO NOW

Which axis is considered the independent variable?

$x$ -axis

Which axis is considered the dependent variable?

$y$ -axis

Page 1

## 4.3 Piecewise Functions - Day 4

Step Function: "pieces" of graph appear to step from one change to another  
\* horizontal pieces

greatest integer function:

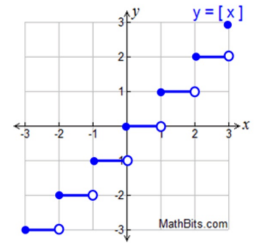
$$y = \lfloor x \rfloor = \left[ \begin{array}{c} x \\ \hline \end{array} \right]$$

\* the greatest integer that is less than or equal to  $x$ .

$$\lfloor 2.7 \rfloor = 2 \quad \lfloor -2.1 \rfloor = -3$$

$$\lfloor 3.5 \rfloor = 3 \quad \lfloor -0.4 \rfloor = -1$$

$$\lfloor 1 \rfloor = 1 \quad \lfloor -5.2 \rfloor = -6$$



Page 2

A long distance call to a city in Europe has an initial cost of \$4.50 for the first minute. The cost increases by \$0.50 for each additional minute. There is only a cost increase for full minutes. The graph below illustrates the pricing.

$(x, y)$  is replaced by:  $(m, c)$   
(minutes, cost)

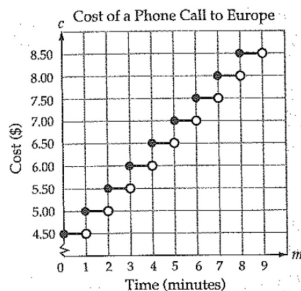
independent variable:

$m \rightarrow$  minutes

dependent variable:

$c \rightarrow$  cost

\* the cost depends on the # of minutes



Page 3

- What is the cost of a 7 minute call?

\$8.00

- What is the cost of a 5-minute and 40 second call?

\$7.00

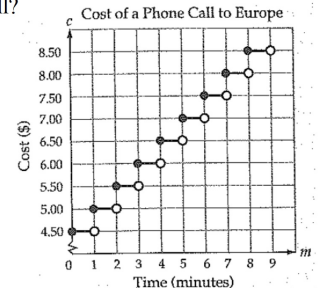
- What is the cost difference between the call in #2 and an 8-minute call?

$$8.50 - 7 = \$1.50$$

- If you paid \$7.50 for a phone call, write an inequality to illustrate the number of minutes the call may have lasted.

$$6 \leq m < 7$$

↑  
minutes



Page 4

At Birch Run Golf Club, golf clubs are rented by the day. You pay for the whole day even if you turn in the clubs early. The first day rental is \$20. The second day is an additional \$20. Every day after the second is \$10. The graph at right represents the rental pricing.

- What is the independent variable?

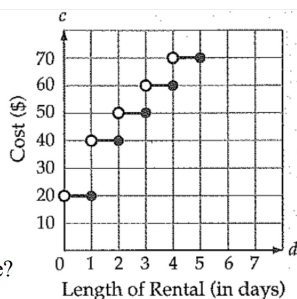
$d \leftarrow$  days

- What is the dependent variable?

$c \leftarrow$  cost

- What is the cost for renting for 2 days?

\$40



- What is the cost of renting for 3.5 days?

\$60

- What is the cost of renting for 0.5 days?

\$20

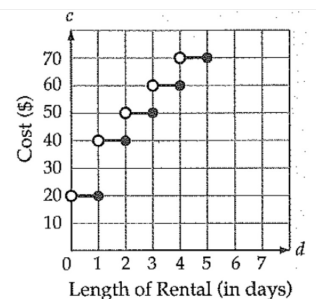
- What is the cost of renting for 2.75 days?

\$50

- If you rented for 3.5 days and paid 7% tax on the rental, how much would you pay?

$$\begin{aligned} & \$60 + 7\% \text{ of } 60 \\ & \$60 + (0.07)(60) \\ & 60 + 4.20 \end{aligned}$$

\$64.20



Page 5

Page 6

12. What is the cost of shipping a 2.8 pound package?

\$17

13. What is the cost of shipping a 1/3 pound package?

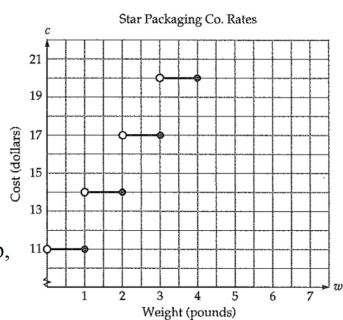
\$11

14. If a package costs \$14 to ship, how much did it weigh?

$$1 < w \leq 2$$

15. If a package costs \$20 to ship, how much did it weigh?

$$3 < w \leq 4$$



# HOMEWORK

Worksheet - HW 4.3 - Day 4