

Name: _____

Find the Cost

Pat's Plumbing Company charges a travel fee for every house call plus an hourly rate for the time required to complete the job. The table shows the relationship between h , the number of hours of labor, and c , the total cost for Pat's Plumbing services.

1. Use the information provided to determine the missing values in the table.

Hours, h	Total Cost, c
1	\$85
2	\$120
3	155
4	\$190
5	225
6	260
7	\$295
8	330
9	365
10	400

2. Describe the process you used to determine the missing values.

3. What is the hourly rate? How do you know?

\$35 per hour

4. What is the travel fee? How do you know?

\$50

5. What equation could be used to determine the total cost, c , for any number of hours, h ?

$$c = 35h + 50$$

6. Use a black colored pencil to graph this equation on Pat's Plumbing Company Graph. Label the graph with the equation.

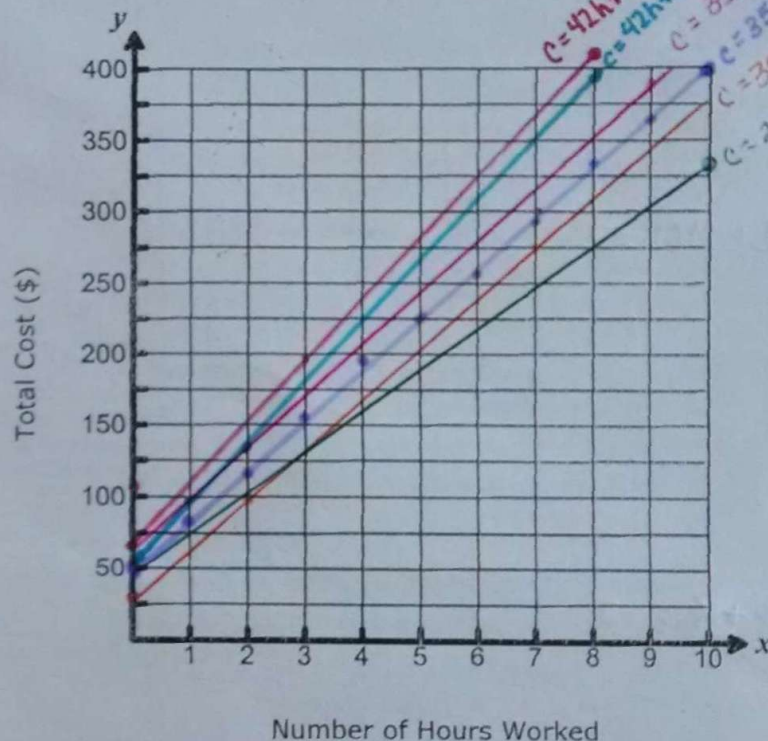
$$y - 85 = 35(x - 1)$$

$$y - 85 = 35x - 35$$

$$y = 35x + 50$$

Name: _____

Pat's Plumbing Company Graph



Pat's Plumbing: Make Changes

You will apply the following 5 situations to Pat's Plumbing Company. For EACH situation you will:

- 1) PREDICT how the change will affect the multiple representations (table, graph and equation)
- 2) USE the changes to complete the table showing the total cost of Pat's Plumbing Services. Work with your partner to decide which values would be most reasonable to include in the table.
- 3) WRITE an equation that could be used to represent the total cost, c , for any number of hours, h , for the new situation.
- 4) GRAPH your new situation on THE SAME GRAPH AS THE ORIGINAL PAT'S PLUMBING.
- 5) Compare and contrast your change situation with the original situation in terms of the multiple representations.
- 6) EXPLAIN whether your prediction was correct.

1) Pat's Plumbing Company decides to increase their hourly rate by 20% and to keep the travel fee the same.

Prediction:

~~New Table~~

Table:

$$35 \cdot .20 = \$7.00$$

Graph: *line will be steeper*

Equation:

slope will change

$$35 + 7 = 42$$

Compare and Contrast

Table:

Graph:

Equation:

New Equation:

$$c = 42h + 50$$

2) Pat's Plumbing Company decided to decrease their hourly rate by 20% and to keep their travel fee the same.

Prediction:

~~New Table~~

Table:

Graph:

Equation:

Compare and Contrast

Table:

Graph:

Equation:

New Equation

$$c = 28x + 50$$

3) Pat's Plumbing Company decided to increase the travel fee by \$20 and to keep the hourly rate the same.

Prediction:

New Table

Table:

Graph:

Equation:

Compare and Contrast

Table:

Graph:

Equation:

New Equation: $c = 35h + 70$

4) Pat's Plumbing Company decided to decrease the travel fee by \$20 and to keep the hourly rate the same.

Prediction:

New Table

Table:

Graph:

Equation:

Compare and Contrast

Table:

Graph:

Equation:

New Equation: $c = 35h + 30$

5) Pat's Plumbing Company decided to increase the hourly rate by 20% and to decrease the travel fee by \$20.

Prediction:

New Table

Table:

Graph:

Equation:

Compare and Contrast

Table:

Graph:

Equation:

New Equation: $c = 42h + 70$

Notes Transformations of Linear Functions

Transformation	Monster	Description of Transformation																
$-f(x)$ <table border="1" data-bbox="153 282 488 619"> <thead> <tr> <th>$(x, f(x))$</th> <th>$(x', -f(x))$</th> </tr> </thead> <tbody> <tr><td>$(-6, -1)$</td><td>$(-6, 1)$</td></tr> <tr><td>$(-4, 3)$</td><td>$(-4, -3)$</td></tr> <tr><td>$(-2, 1)$</td><td>$(-2, -1)$</td></tr> <tr><td>$(0, 5)$</td><td>$(0, -5)$</td></tr> <tr><td>$(2, 2)$</td><td>$(2, -2)$</td></tr> <tr><td>$(4, 4)$</td><td>$(4, -4)$</td></tr> <tr><td>$(6, 0)$</td><td>$(6, 0)$</td></tr> </tbody> </table>	$(x, f(x))$	$(x', -f(x))$	$(-6, -1)$	$(-6, 1)$	$(-4, 3)$	$(-4, -3)$	$(-2, 1)$	$(-2, -1)$	$(0, 5)$	$(0, -5)$	$(2, 2)$	$(2, -2)$	$(4, 4)$	$(4, -4)$	$(6, 0)$	$(6, 0)$		<p>Reflection across x-axis</p>
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