Name _____ Date _____ Class _____

LESSON 1-8

Problem Solving

Exploring Transformations

The graph shows the total cost of renting a concert hall. A cleaning fee of $40 is included. Use the graph for Exercises 1–5.

1. What is the cost of renting the hall for 2 hours? for 3 hours? for 6 hours? for 7 hours?

Solution:

More than 1 hour up to 2 hours is $120.

More than 2 hours up to 3 hours is $160.

More than 5 hours up to 6 hours is $220.

More than 6 hours up to 7 hours is $240.

2. What is the rate per hour not including the cleaning fee if Harry rents the hall for up to 3 hours?

More than _____ hours up to _____

hours is _____.

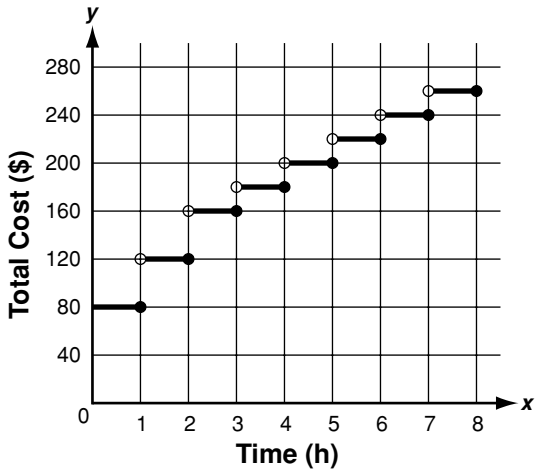
_____ − _____ = _____
cleaning fee cost

rate = $\frac{\text{\_\_\_\_\_}}{3}$ = _____

3. What is the rate per hour after the first 3 hours?

_____

Concert Hall Rental



4. Describe the effect on the graph if the cleaning fee were changed to $25.

_____

5. If the hall must be rented for 3 hours, what effect does this change have on the graph above?

_____

_____

_____

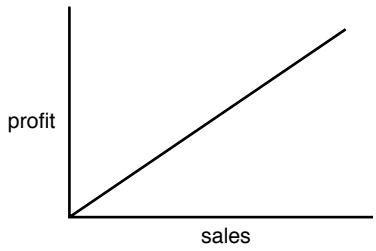
Choose the letter for the best answer.

6. The graph shows last year's profit based on sales. This year profits have decreased 10%. What kind of transformation will this effect have on the graph?

A vertical compression

B vertical stretch

C horizontal compression



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Solution:

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More than 6 hours up to 7 hours is $240.

2. What is the rate per hour not including the cleaning fee if Harry rents the hall for up to 3 hours?

More than 2 hours up to 3 hours is $160.

$\$160 - \$40 = \$120$

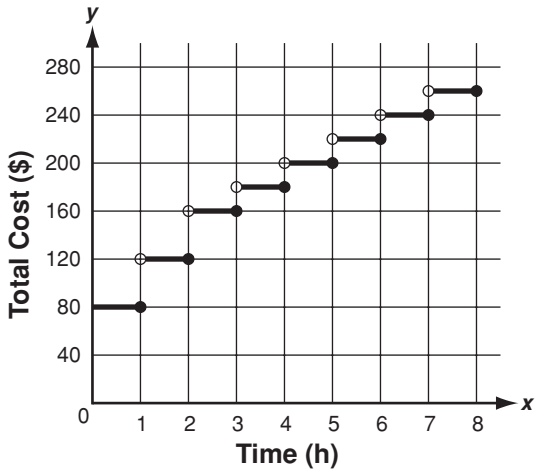
(cleaning fee; cost)

$\text{rate} = \frac{\$120}{3} = \$40$

3. What is the rate per hour after the first 3 hours?

$20 per hour

Concert Hall Rental



4. Describe the effect on the graph if the cleaning fee were changed to $25.

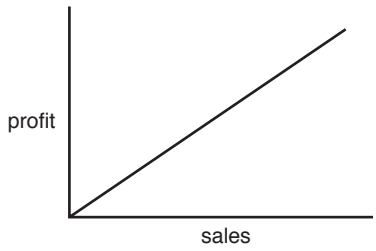
Translated down 15 units

5. If the hall must be rented for 3 hours, what effect does this change have on the graph above?

Possible answers: A line would go from (0, 160) to (3, 160) with no open circle; the range would not include any numbers less than 160.

Choose the letter for the best answer.

6. The graph shows last year's profit based on sales. This year profits have decreased 10%. What kind of transformation will this effect have on the graph?



(A) vertical compression

B vertical stretch

C horizontal compression