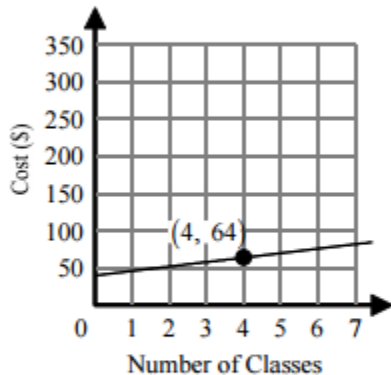


### Objective 65

Compare a description of a linear function to a linear function represented in a graph

A sports club offers aerobics classes. The total amount a customer spends on individual classes,  $C$ , is modeled by the function  $C = \$16n$ . In the function,  $n$  is the total number of classes taken. The local community center also offers aerobics classes. There is a one-time membership fee of \$40 at the community center. Members also pay for each class taken. The total cost of aerobics classes at the community center is modeled by the graph.



Which payment option is less expensive if 4 classes total are taken?

- [A] It is less expensive to take 4 classes at the sports club.
- [B] It is less expensive to take 4 classes at the community center.
- [C] Both options cost the same for 4 classes.

**Step 1-** Solve the equation given, plugging in the known value for the variable:

$$C = \$16n, n = 4$$

$$C = \$16 \cdot 4 = \$64$$

$C = \$64$  at the sports club

**Step 2-** Use the graph to determine the value for  $C$  when the value for  $n$  is the same as it was for the equation:

When  $n = 4$ ,  $C = \$64$  at the community center

**Step 3-** Compare the two values

$$C = \$64 \text{ at the sports club}$$

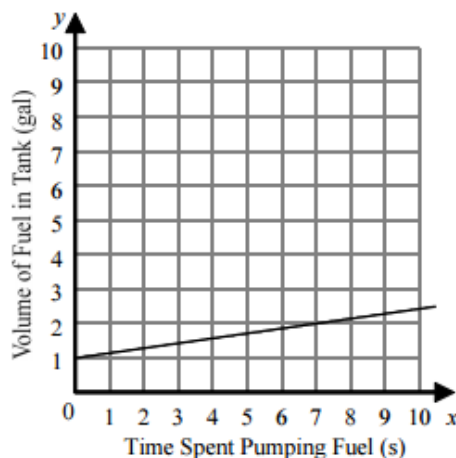
$$C = \$64 \text{ at the community center}$$

[C] is the correct answer because both costs are \$64 when  $n = 4$ .

#### Guided Practice:

Ms. Hansen is filling up her car's fuel tank. Her car has 2 gallons of fuel in the tank when she begins to pump fuel. Her pump dispenses fuel at a constant rate of  $\frac{1}{7}$  gallon per second.

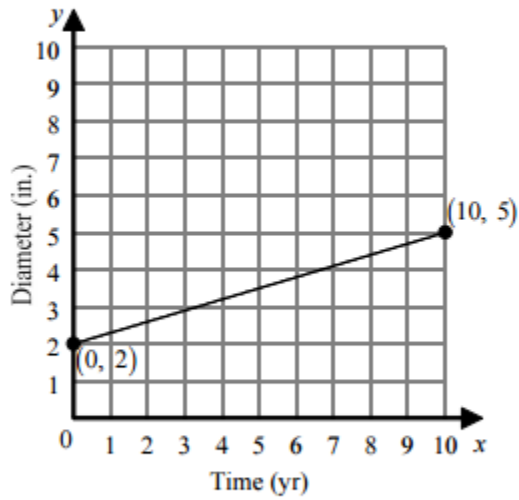
Mr. Bryant is also filling up his car's fuel tank. The linear function graphed below gives the volume of fuel in his tank at various times. Whose tank contains more fuel after 7 seconds of pumping fuel?



- [A] Ms. Hansen's tank contains more fuel.
- [B] Mr. Bryant's tank contains more fuel.
- [C] The tanks contain the same volume of fuel.

**Independent Practice:**

An olive tree had a diameter of 3 inches when it was planted. The tree's diameter grew at a constant rate of 0.4 inch per year. The diameter of a maple tree also grew at a constant rate after planting. The graph below shows the diameter of the maple tree over time. Which tree had a faster growth rate?



- [A] The olive tree had a faster growth rate.  
[B] The maple tree had a faster growth rate.      [C] Both trees grew at the same rate.