

---

# Shelves

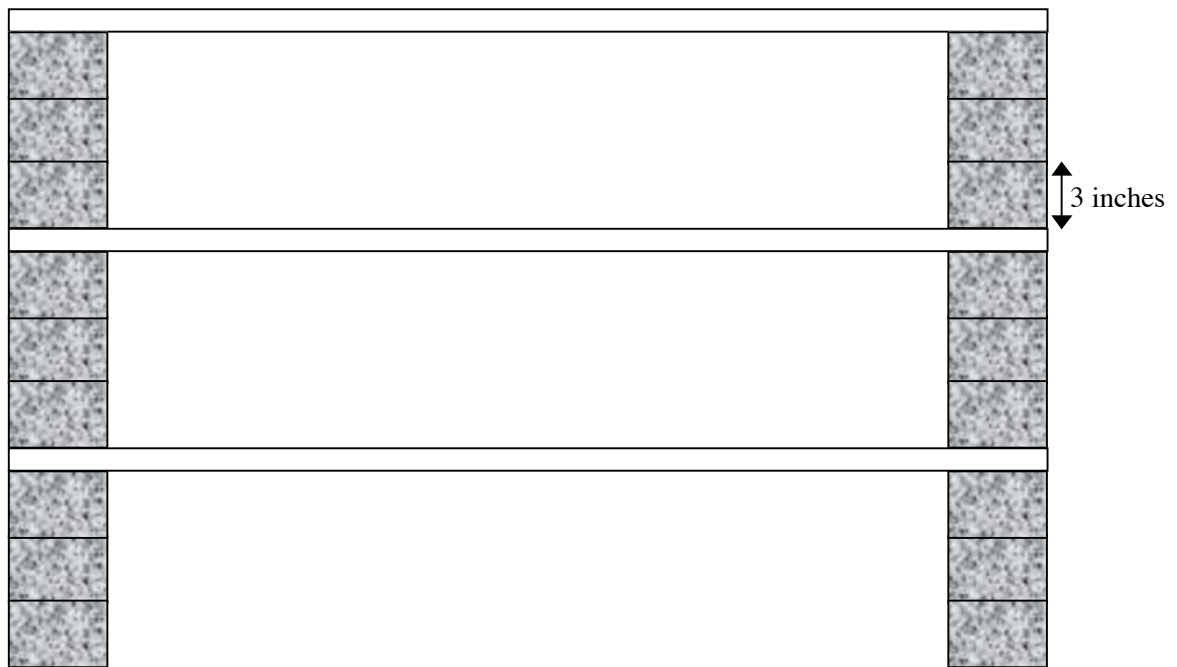
---

Pete is making a bookcase for his books and other stuff.

He already has plenty of bricks and can get planks of wood for \$2.50 each.

Each plank of wood measures 1 inch by 9 inches by 48 inches. Each brick measures 3 inches by 4.5 inches by 9 inches.

For each shelf, Pete will put three bricks at each end then put a plank of wood on top. The diagram shows three shelves.



1. Pete wants five shelves in his bookcase.

a. How many planks of wood does he need?

\_\_\_\_\_

b. How many bricks does he need?

\_\_\_\_\_

c. How high will the shelves be?

\_\_\_\_\_

d. How much will the bookcase cost?

\_\_\_\_\_

The diagram below shows graphs with the following descriptions:

Description One: The cost of the bookcase against the number of shelves.

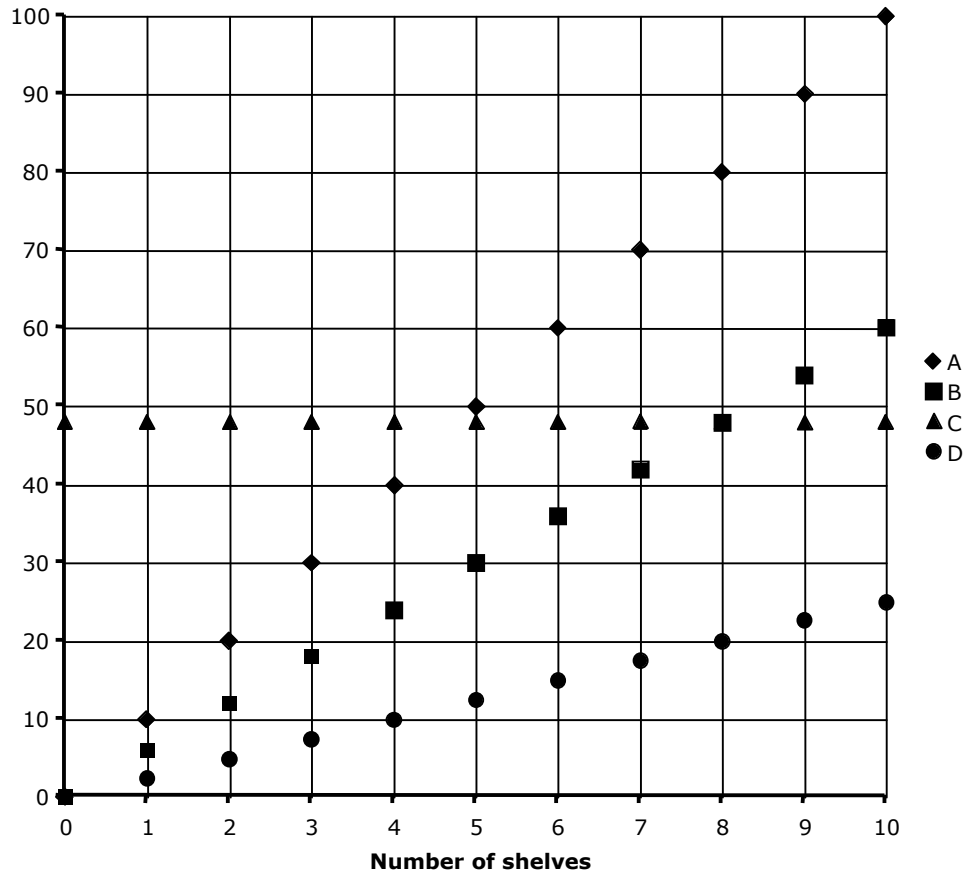
Description Two: The number of bricks against the number of shelves.

Description Three: The height of the bookcase against the number of shelves.

Description Four: The width of the bookcase against the number of shelves.

The equations of the graphs are

$$y = 48, \quad y = 10x, \quad y = 6x, \quad y = 2.5x$$



2. Complete this table to match each graph with its description and its equation.

| Graph letter | Description number | Equation |
|--------------|--------------------|----------|
| A            |                    |          |
| B            |                    |          |
| C            |                    |          |
| D            |                    |          |

| Shelves                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |            | Rubric             |                    |          |   |   |           |   |   |          |   |   |          |   |   |            |                                                                |   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------|--------------------|--------------------|----------|---|---|-----------|---|---|----------|---|---|----------|---|---|------------|----------------------------------------------------------------|---|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |            | points             | section points     |          |   |   |           |   |   |          |   |   |          |   |   |            |                                                                |   |
| 1. Gives correct answer: <b>5</b><br>Gives correct answer: <b>30</b><br>Gives correct answer: <b>50</b> inches<br>Gives correct answer: <b>\$12.50</b>                                                                                                                                                                                                                                                                                                                                                                          |                    |            | 1<br>2<br>1<br>2ft | 6                  |          |   |   |           |   |   |          |   |   |          |   |   |            |                                                                |   |
| 2. Four points for eight correct answers.<br><table border="1"><thead><tr><th>Graph letter</th><th>Description number</th><th>Equation</th></tr></thead><tbody><tr><td>A</td><td>3</td><td><math>y = 10x</math></td></tr><tr><td>B</td><td>2</td><td><math>y = 6x</math></td></tr><tr><td>C</td><td>4</td><td><math>y = 48</math></td></tr><tr><td>D</td><td>1</td><td><math>y = 2.5x</math></td></tr></tbody></table><br><i>Partial credit</i><br>7 or 6 correct 3 points<br>5 or 4 correct 2 points<br>3 or 2 correct 1 point |                    |            | Graph letter       | Description number | Equation | A | 3 | $y = 10x$ | B | 2 | $y = 6x$ | C | 4 | $y = 48$ | D | 1 | $y = 2.5x$ | 4<br><br><br><br><br><br><br><br><br><br><br>(3)<br>(2)<br>(1) | 4 |
| Graph letter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Description number | Equation   |                    |                    |          |   |   |           |   |   |          |   |   |          |   |   |            |                                                                |   |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3                  | $y = 10x$  |                    |                    |          |   |   |           |   |   |          |   |   |          |   |   |            |                                                                |   |
| B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2                  | $y = 6x$   |                    |                    |          |   |   |           |   |   |          |   |   |          |   |   |            |                                                                |   |
| C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 4                  | $y = 48$   |                    |                    |          |   |   |           |   |   |          |   |   |          |   |   |            |                                                                |   |
| D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1                  | $y = 2.5x$ |                    |                    |          |   |   |           |   |   |          |   |   |          |   |   |            |                                                                |   |
| Total Points                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |            |                    | 10                 |          |   |   |           |   |   |          |   |   |          |   |   |            |                                                                |   |