

7.3 Estimating the Cost of a Project

Focus: rounding, proportional reasoning, problem solving

Warm Up	
1. Round to the nearest dollar. a) \$18.99 _____ b) \$11.29 _____ c) \$47.88 _____	2. Round to the nearest \$10. a) \$18.99 _____ b) \$11.29 _____ c) \$47.88 _____
3. Without a calculator, add the rounded values in #1.	4. Without a calculator, add the rounded values in #2.
5. What is 10% of the rounded value in #3? _____	6. What is 10% of the rounded value in #4? _____
7. What is half of the value in #5? _____	8. What is half of the value in #6? _____

How Much Will It Cost?

- Estimating the cost of a project can help you decide if you will go ahead with it.
- To estimate the cost, you need to estimate the quantity of the materials needed.
- Rounding prices and estimating taxes also help you make a reasonable estimate for the total cost of a job.

1. Estimate the following values.

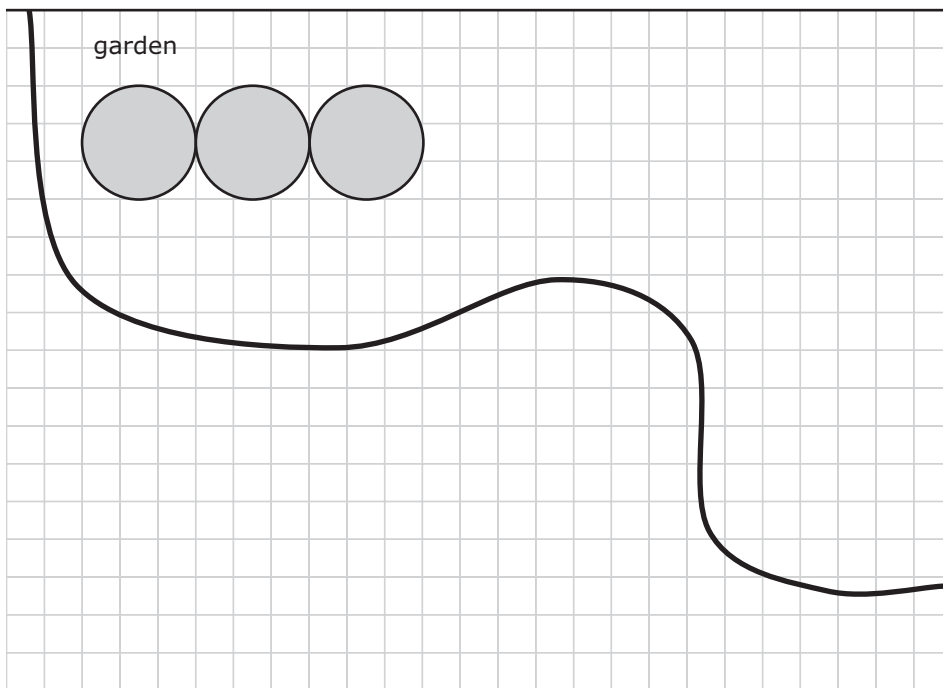
a) 70 fence boards at \$3.99 each.

b) The tax on the 70 fence boards in part a).

c) The perimeter of four $9\frac{1}{2}$ " by $11\frac{1}{2}$ " picture frames.

d) The area of the glass needed for the 4 frames in part c).

2. Three cedar trees currently sit near the corner of a property. The owners want to create a garden around the trees. Then, they will add more cedars of the same size to fill the garden. The scale of the diagram is 1 square to 1 foot.



- a) Draw the additional cedars to fill the garden on the diagram.
- b) How many cedars did you add? _____
- c) A local nursery is selling cedars for \$47.99 each. Without using a calculator, estimate the cost of the additional cedars before tax.
- d) Estimate the tax on the cedars.
- e) What is your estimate of the total cost?
- f) Calculate the exact total cost and compare this to your estimate.

3. Some schools run a Breakfast Club for students in the morning. Students are welcome to come for a free breakfast. Many students come because they enjoy eating with friends. The program is run by volunteers.



- a) Create a list of non-food supplies that a Breakfast Club would need to get started. Complete the Estimated Cost column. Two suggestions are given.

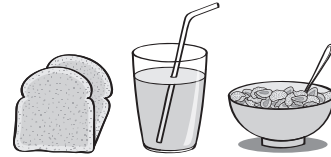
Item	Estimated Cost	Actual Cost
Fridge	\$100	
Toaster	\$20	
Totals		

Go to www.mcgrawhill.ca/books/workplace12 and follow the links for online sources of inexpensive items.



- b) Used appliances and materials are available free or for sale in most communities. Research the availability of free items or the cost of buying the items in part a). Complete the Actual Cost column.

- c)** Create a list of food items that the Breakfast Club would need to keep in stock.

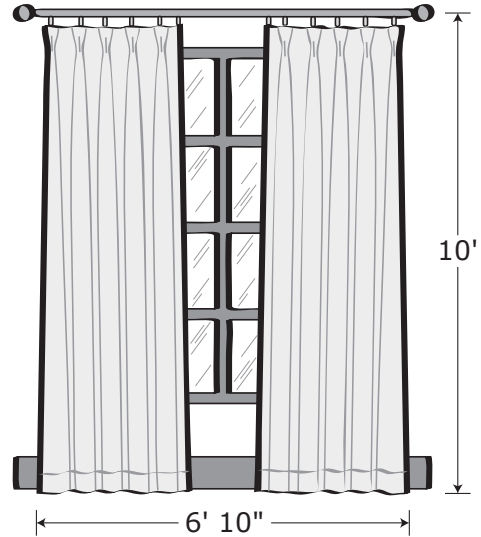


- d)** Survey another class in the school to determine the number of students who would attend a Breakfast Club. Express the result as a fraction. _____
- e)** Based on the population of your school, use the result in part d) to estimate how many students would attend the Breakfast Club.
- f)** Use flyers from grocery stores to create a shopping list with an estimated cost based on the number of students attending the Breakfast Club.
- g)** Students liked the Breakfast Club so much that the number of students attending increased by 25% during the first month. Which costs will increase by 25%?

- h)** Which costs will not increase?

4. A hotel needs to clean the drapes of a large window in its front entrance.

- The drapes hang from a rod at the top of the window to the floor below.
- The rod is 10 ft above the floor.
- The window is 6' 10" wide.
- The material for the drapes is twice the width of the window.



- a) Estimate the area of the drapes.

- b) Calculate the area of the drapes.

- c) Dry cleaners charge by the square yard to clean drapes. Create a number of estimates you could submit to the hotel management based on the following costs.

Cost Per Square Yard	Estimated Cost	Estimated After-Tax Cost
Clean It Right \$4.99		
Hotel Cleaning \$5.23		
Drapes for Us \$6.50		
Window Coverings Inc. \$7.18		

- The hotel manager checks the reputations of the various companies.
- He also checks online to see about any specials.
- Drapes for Us has a monthly special. If you get 1 set of drapes cleaned at the regular price, you can have a 2nd set of drapes cleaned at 50% off.



- 5.** The hotel restaurant has a set of drapes the same size as those in the hotel entrance.
- a)** If the manager does the 2 sets at the same time, estimate the cost of cleaning the second set.

 - b)** Estimate the cost of cleaning both sets.

 - c)** Calculate the cost of cleaning both sets.

✓ Check Your Understanding

- 1.** Why might someone wish to consider a number of estimates before making a decision on a project?

- 2.** What might happen if an estimate for material is

a) too small?

b) too large?
