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Problems Based on Missing Information

The text, the graphics, and the question itself may have much more information than you need to solve a problem. When you make a plan, you choose carefully from all the information presented and use only the information you need.

But sometimes the information you need is not available. It's not in the text, the graphic, or a previous problem. It's not a piece of hidden information. A problem like this does not have enough information to solve it. When there is not enough information to solve a problem, you need to recognize what is missing. To answer this kind of question, state that the problem cannot be solved and identify what kind of information is needed.

Try this problem. Think about what kind of information is not there.

9 What is the total cost for the amount of water the elephants drink in a year?

A What do you want to find out?

_____

B What information do you know?

_____

_____

C What operation do you need?

_____

D What information do you need to find the answer?

_____

E Is this information located in the text? _____

Is it in the graphic? _____

Is it in a previous problem? _____

Is it hidden information? _____

F Can this problem be solved with the information you have? Explain why or why not.

_____

_____

_____

Here's another problem to try on your own.

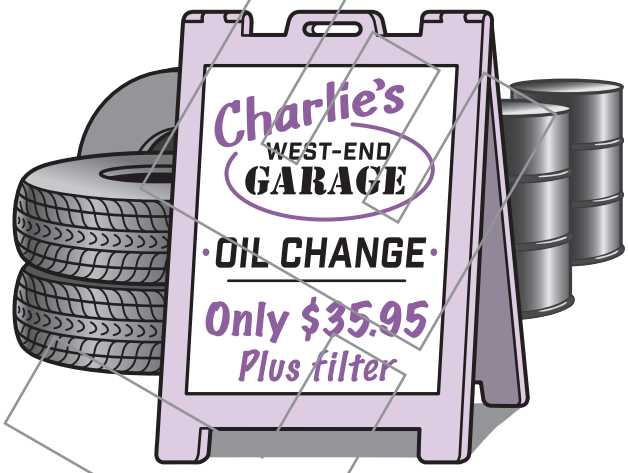
10 In addition to food and water, the elephant sanctuary provides medical care for the animals. What is the total yearly cost of caring for Betsy?

9 Service Station

Charlie owns and operates a small neighborhood service station. There, he repairs and services cars. He charges $52.50 per hour for labor during repair jobs. Parts cost extra.

Yesterday, Charlie repaired 3 cars. He worked for an hour on the first car, 1.25 hours on the second car, and 2.5 hours on the third car.

Much of Charlie's business is doing oil changes. He charges a flat fee for an oil change. Yesterday, he changed the oil on 16 cars.



Solve each problem. If there is not enough information to solve it, tell what is needed.

1 Charlie charged his first repair customer $237.69, before tax. How much did the parts for this job cost?

The cost of a job includes parts and labor.

2 The third repair customer's bill was $406.69. It included labor, parts for $226.59, an oil change, and a filter. How much did the filter cost?

3 The second repair customer's bill was $222.38. What was the average amount of the 3 repair bills?

4 Charlie used 68 quarts of oil in oil changes yesterday. On average, how much oil did he put in each car?

Write placeholder zeros when you need to.

5 The oil Charlie uses for oil changes comes in a large 65-gallon drum. If he opened a new drum yesterday, how many gallons of oil were left in the drum at the end of the day?

Numbers must represent the same units in order to add and subtract them.

6 How much did Charlie pay for all the oil he used yesterday?

7 Coolant is a liquid added to the radiator of a car to keep the engine from getting too hot. In the last month, Charlie has sold 36 bottles of coolant, at an average price of $8.19. How much money has Charlie collected on coolant in the last month?

8 Of the 18 cars Charlie worked on today, he worked on 4 more in the afternoon than he did in the morning. How many cars did he work on in the morning and how many did he work on in the afternoon? Write an equation to show how the numbers are related. Explain how you found the answer.

How do the numbers of cars relate to each other?