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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 needed information is not there.**

**9** A tub of popcorn at the theater costs $8. Mrs. Standish buys several large tubs for the group to share. How much does she spend for popcorn for the group?

**A** What do you want to find out?

_____

**B** What 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? _____

SAMPLE

**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** Andrea buys a drink at the snack bar. A large drink costs $4. A small drink costs $3. How much money does Andrea have left after buying her drink? Explain.

SAMPLE


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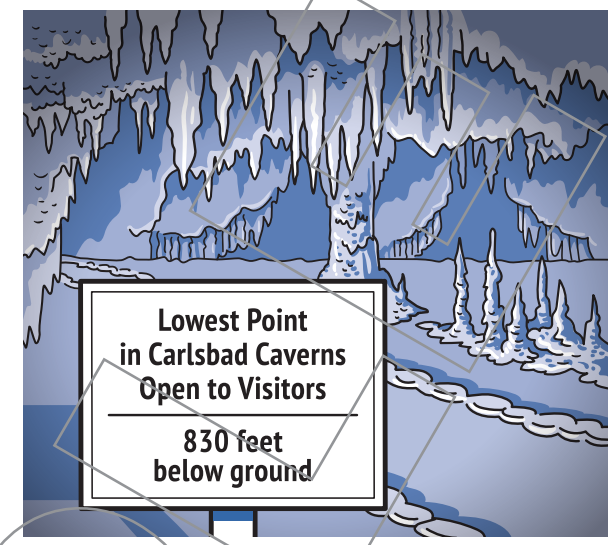
# 4 Famous Caves

Two popular national parks were created around famous caves. Carlsbad Caverns National Park covers 46,766 acres in New Mexico. Carlsbad Caverns lies under the desert surface. Visitors enjoy seeing the many underground rooms and passages carved out by nature.

Mammoth Cave National Park is in Kentucky and covers 52,823 acres. Visitors to Mammoth Cave can go down as far as 360 feet deep.




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

**1.** The Carlsbad Caverns became a national park in 1930. How many years has it been a national park?

**What year is it now?**

**2** How much longer has Carlsbad Caverns been a national park than Mammoth Cave has?

**3** How many acres of land do these two national parks cover?

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**4** How much larger is Mammoth Cave National Park than Carlsbad Caverns National Park?

**5** How much farther underground can a visitor go in Carlsbad Caverns than in Mammoth Cave?

**6** In Mammoth Cave, the Mammoth Passage tour costs $7 for an adult and $5 for a youth. The Frozen Niagara tour costs $13 for an adult and $9 for a youth. How much more would it cost 1 adult and 2 youths to do the Frozen Niagara tour than the Mammoth Passage tour?

**How much would it cost to do each tour?**

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**7** A family of 2 adults and 2 children goes on the Frozen Niagara tour. If they pay for their tickets with a $50 bill, how much change will they get?

**You already know the price of tickets for 1 adult and 2 children.**

**8** Another popular tour in Mammoth Cave is the Gothic Avenue tour. An adult ticket for this tour costs $4 more than twice the cost of a ticket for the Mammoth Passage tour. A Gothic Avenue tour youth ticket costs $2 less than 3 times the cost of a ticket for the Mammoth Passage tour. What are the prices of an adult ticket and a youth ticket for the Gothic Avenue tour? Write equations to represent the costs and then solve. Explain how you know your equations are correct.

**How many operations will each equation have?**

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