

# Review Logic. Other Homework problems

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If a man tries to fail and succeeds, which did he do?

Play a daily set puzzle at: [http://setgame.com/set/puzzle\\_frame.htm](http://setgame.com/set/puzzle_frame.htm)

## Review

These are some important puzzles from previous homework. If you didn't do them, try again. If you did, refresh your answers.

**Exercise 1.** A farmer brought 9 cows to a pasture and they ate all the grass in 6 days. If he had brought 8 cows instead, they would have eaten all the grass in 9 days. What's the maximum number of cows that can feed on this pasture forever, while the grass is growing?

**Exercise 2.** Tigger, Piglet, and Pooh are at Pooh's house. They are going to Kanga's house which is 33 miles away. They have a 2-seat scooter which rides at 25 miles per hour with 1 rider on it; or, at 20 miles per hour with 2 riders. Each of the 3 friends walks at 5 miles per hour. Prove that all 3 of them can make it to Kanga's house in 3 hours.

**Exercise 3.** Tigger, Piglet, Pooh, and Eeyore come to a bridge. They have one flashlight. It's dark, so nobody can walk without the flashlight. Anyone can walk either alone, or together with someone else, but the bridge can't hold more than 2 friends at the same time. It takes Tigger 1 minute to cross the bridge (walking either way); Piglet — 2 minutes; Pooh — 5 minutes; Eeyore — 10 minutes. Any 2 friends together walk at the speed of the slower one. Find the fastest way for them to cross the bridge.

## Competition Practice

**Exercise 4.** Calculate:

$$\left( \frac{3\frac{1}{3} + 2.5}{2.5 - 1\frac{1}{3}} \cdot \frac{4.6 - 2\frac{1}{3}}{4.6 + 2\frac{1}{3}} \cdot 5.2 \right) / \left( \frac{0.05}{\frac{1}{7} - 0.125} + 5.7 \right).$$

**Exercise 5. 2005 AMC 10A, Problem 1.** Two is 10% of  $x$  and 20% of  $y$ . What is  $xy$ ?

**Exercise 6. 1986 AMC 8, Problem 17.** Let  $o$  be an odd whole number and let  $n$  be any whole number. Which of the following statements about the whole number  $(o^2 + no)$  is always true?

1. it is always odd
2. it is always even
3. it is even only if  $n$  is even
4. it is odd only if  $n$  is odd
5. it is odd only if  $n$  is even

**Exercise 7. 1986 AMC 8, Problem 2.** Alan, Beth, Carlos, and Diana were discussing their possible grades in mathematics class this grading period. Alan said, "If I get an A, then Beth will get an A." Beth said, "If I get an A, then Carlos will get an A." Carlos said, "If I get an A, then Diana will get an A." All of the statements were true, but only two of the students received an A. Which two received A's?

## Challenge Problems

**Exercise 8.** You are trapped in a room with two doors. One leads to certain death and the other leads to freedom. You don't know which is which. There are two robots guarding the doors. They will let you choose one door but upon doing so you must go through it. You can, however, ask one robot one question. The problem is one robot always tells the truth, the other always lies and you don't know which is which.

What is the question you ask?

**Exercise 9.** You are mixing cement and the recipe calls for five gallons of water. You have a garden hose giving you all the water you need. The problem is that you only have a four gallon bucket and a seven gallon bucket and neither has gradation marks. Find a method to measure five gallons.