

Word Problems. Other Homework problems

Tanya Khovanova

November 3, 2008

— Anytime you have a 50-50 chance of getting something right, there's a 90% probability you'll get it wrong.

Finish the problems from the class handout.

Play speedmath (<http://web.cs.wpi.edu/~mikesp/speedmath/speedmath.swf>) until you can solve all the problems before the time runs out or, even better, until you get 3,000 points.

Competition practice

Exercise 1. 2006 AMC 10A, Problem 4. A digital watch displays hours and minutes with am and pm. What is the largest possible sum of the digits in the display?

Exercise 2. 2006 AMC 10A, Problem 14. Two farmers agree that pigs are worth \$300 and that goats are worth \$210. When one farmer owes the other money, he pays the debt in pigs or goats, with “change” received in the form of goats or pigs as necessary. (For example, a \$390 debt could be paid with two pigs, with one goat received in change.) What is the amount of the smallest positive debt that can be resolved in this way?

Exercise 3. Calculate:

$$\frac{(.5/1.25 + \frac{7}{5}/1\frac{4}{7} - \frac{3}{11}) \cdot 3}{(1.5 + \frac{1}{4})/18\frac{1}{3}}.$$

Exercise 4. 2006 AMC 10A, Problem 5. Doug and Dave shared a pizza with 8 equally-sized slices. Doug wanted a plain pizza, but Dave wanted

anchovies on half of the pizza. The cost of a plain pizza was \$8, and there was an additional cost of \$2 for putting anchovies on one half. Dave ate all the slices of anchovy pizza and one plain slice. Doug ate the remainder. Each then paid for what he had eaten. How many more dollars did Dave pay than Doug?

Challenge Problems

Exercise 5. I had a cup full of juice on a kitchen table. Mike came and drank a portion of it, then to cover it up he added water to fill the cup back up. Then Bob came and did the same — by a coincidence he drank the same portion of the cup as Mike. At the end my cup had three times less juice than water. What portion of the cup did Mike drink?

Exercise 6. 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.