

1. A boilermaker is a cocktail that consists of adding a shot of whiskey to beer. If you add a 1.5 oz shot of whiskey which is 86 proof (43 percent alcohol by volume) to 22 oz of beer which is 4.5 percent alcohol, what percentage of alcohol will your boilermaker have? Round your answer to the nearest tenth of a percent.

- A. The boilermaker will contain 7.2 percent alcohol by volume.
- B. The boilermaker will contain 7.1 percent alcohol by volume.
- C. The boilermaker will contain 6.7 percent alcohol by volume.
- D. The boilermaker will contain 6.3 percent alcohol by volume.
- E. The boilermaker will contain 6.2 percent alcohol by volume.
- F. The boilermaker will contain 7.5 percent alcohol by volume.
- G. The boilermaker will contain 6.4 percent alcohol by volume.
- H. The boilermaker will contain 7 percent alcohol by volume.

2. Mrs. Puff owns an ice cream shop in Twain Harte which has daily overhead costs of \$85. They make \$3.00 on every item they sell. If their profit on a particular day was \$89, how many units did they sell?

- A. They sold 58 units.
- B. They sold 57 units.
- C. They sold 67 units.
- D. They sold 68 units.
- E. They sold 63 units.
- F. They sold 49 units.
- G. They sold 56 units.
- H. They sold 64 units.

3. Learning how to break down a seemingly complicated problem into a series of manageable steps is

- A. an essential step in the problem-solving process.
- B. important for science majors.
- C. an important lifetime skill that extends well beyond word problems.
- D. a thorny and impenetrable task reserved for masochists and practitioners of dark arts.

4. A retiree receives a yearly income of \$10500 from her IRA to help fund her retirement. She has placed \$50000 of this account in a secure Treasury bond earning 5 percent yearly interest. If she earns a 7 percent rate of return on the rest of this IRA through an insurance annuity, what is total amount invested in the IRA? Round your answer to the nearest dollar.

- A. The retiree invested \$164293 in the IRA.
- B. The retiree invested \$164286 in the IRA.
- C. The retiree invested \$164281 in the IRA.
- D. The retiree invested \$164287 in the IRA.
- E. The retiree invested \$164284 in the IRA.
- F. The retiree invested \$164292 in the IRA.
- G. The retiree invested \$164282 in the IRA.
- H. The retiree invested \$164279 in the IRA.

5. A taxi service charges an initial amount of \$4.00 plus a \$1.40 charge for every mile. If the total fare is \$33.4, how many miles was the trip?

- A. The trip was 18 miles.
- B. The trip was 12 miles.
- C. The trip was 24 miles.
- D. The trip was 21 miles.
- E. The trip was 19 miles.
- F. The trip was 22 miles.
- G. The trip was 29 miles.
- H. The trip was 16 miles.

6. Billy Bob wants to fortify his beer with some bourbon which is 90 proof (45 percent alcohol by volume). How many ounces of bourbon does Billy Bob need to add to his 12 oz beer which is 6 percent alcohol in order to get a fortified mixture which is 12 percent alcohol? Round your answer to the nearest tenth of an ounce.

- A. Billy Bob needs to add 2.4 oz of bourbon to get a mixture which is 12 percent alcohol.
- B. Billy Bob needs to add 1.3 oz of bourbon to get a mixture which is 12 percent alcohol.
- C. Billy Bob needs to add 3 oz of bourbon to get a mixture which is 12 percent alcohol.
- D. Billy Bob needs to add 2.6 oz of bourbon to get a mixture which is 12 percent alcohol.
- E. Billy Bob needs to add 2.7 oz of bourbon to get a mixture which is 12 percent alcohol.
- F. Billy Bob needs to add 2.2 oz of bourbon to get a mixture which is 12 percent alcohol.
- G. Billy Bob needs to add 1.8 oz of bourbon to get a mixture which is 12 percent alcohol.
- H. Billy Bob needs to add 3.2 oz of bourbon to get a mixture which is 12 percent alcohol.

7. Two friends go to a park to exercise. One starts walking at a rate of 7 mi/h on the 7-mi path around the park, and the other starts from the same point, jogging at a rate of 2 mi/h in the opposite direction on this path. How many minutes will it be before they meet on this path? Round your answer to the nearest minute.

- A. It will take 47 minutes to meet.
- B. It will take 44 minutes to meet.
- C. It will take 51 minutes to meet.
- D. It will take 49 minutes to meet.
- E. It will take 42 minutes to meet.
- F. It will take 57 minutes to meet.
- G. It will take 50 minutes to meet.
- H. It will take 43 minutes to meet.

8. Billy Bob is mixing up a batch of his famous “Mother Lode Swerve.” Here’s Billy Bob’s secret recipe:

- 1) Lots of sugar.
- 2) Several Kool Aid drink mix packets.
- 3) Pure mountain spring water.
- 4) Moonshine from Billy Bob’s still.

Now, Billy Bob is a bright, well-liked fellow, but he doesn’t remember any algebra, so he needs a little help. Billy Bob is planning a hootenanny and needs to know how much of the mixed Sugar Kool Aid drink (no alcohol) and bourbon (46 percent alcohol) he needs to mix together to make 40 gallons of Mother Lode Mountain Punch which is 12 percent alcohol. Round your final numbers to the nearest tenth of a gallon. Hint: this problem is very similar to our first POW.

- A. Billy Bob needs to mix 29 gallons of Kool Aid and 11 gallons of moonshine.
- B. Billy Bob needs to mix 30.4 gallons of Kool Aid and 9.6 gallons of moonshine.
- C. Billy Bob needs to mix 30.6 gallons of Kool Aid and 9.4 gallons of moonshine.
- D. Billy Bob needs to mix 29.4 gallons of Kool Aid and 10.6 gallons of moonshine.
- E. Billy Bob needs to mix 29.6 gallons of Kool Aid and 10.4 gallons of moonshine.
- F. Billy Bob needs to mix 28.9 gallons of Kool Aid and 11.1 gallons of moonshine.
- G. Billy Bob needs to mix 29.5 gallons of Kool Aid and 10.5 gallons of moonshine.
- H. Billy Bob needs to mix 30 gallons of Kool Aid and 10 gallons of moonshine.