Guidelines on the CEU administered mathematics test

The format, length and difficulty of the test is comparable to the quantitative section of the GMAT. If you are well prepared for the GMAT, you will also succeed in the CEU math test.

Topics covered

Algebra
- percentages, ratios
- units of measurement, conversion
- equations of two unknowns
- quadratic functions
- simple arithmetic with powers
- basic combinatorics

Geometry
- graphs of functions in 2 dimensions
- length, angles

Statistics
- arithmetic average, median, mode
- weighted average
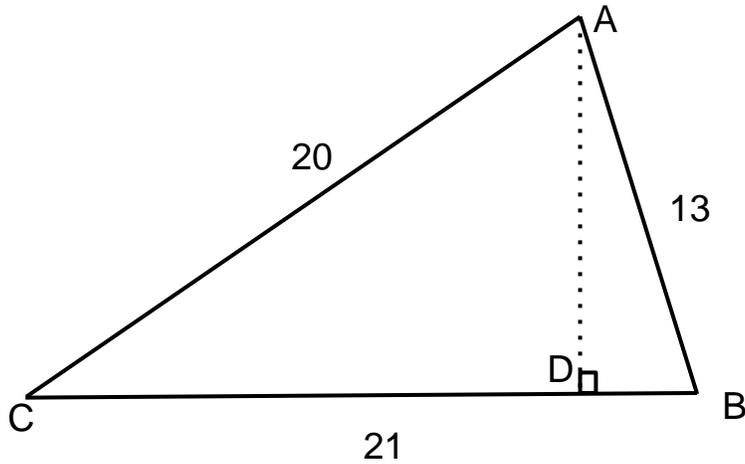- frequency, probability of an event

Format

The test has 25 multiple choice questions. There is only one correct answer for each. Each correct answer is worth 5 points. To discourage guessing, there is a 1 point subtraction for each incorrect answer. You will have 75 minutes for the test. You can use a pencil and paper, but no calculator or other material.

Sample questions

Below are 10 sample questions. Try to solve them in 20 minutes and check your answers in the end. Note that the actual test will be longer.

1. A real estate developer has 11 projects. The (arithmetic) average value of the projects is $1.2 million. One project is worth $200,000 and all others are worth at least as much. What is the average value of the other projects?
   a. $1,000,000
   b. $1,300,000
   c. $120,000
   d. $1,330,000
   e. $100,000

2. Given the information above, what is the highest possible value of the most valued project?
   a. $1,300,000
   b. $14,700,000
   c. $10,000,000
   d. $1,200,000
   e. $11,200,000

3. You are shopping for a gadget online. Store A offers 25 percent off the manufacturer's recommended sales price (MRSP) and free shipping. Store B offers 30 percent off the MRSP and $10 shipping charge. Including the shipping charge, you would have to pay the same amount in both stores. What is the MRSP of the gadget?
   a. $100
   b. $6.9
   c. $18.2
   d. $210
   e. $200

4. There are four computer engineers and some business analysts at a firm. You have to organize them in a team of five workers. You look at each possible team of five and realize that each has at least one computer engineer and at least one business analyst. What is the highest possible number of business analysts at the firm?
   a. 20
   b. 4
   c. 16
   d. 11
   e. 5

5. In the triangle below, what is the length of the section AD? The ADB angle is the right angle, the sides of the triangle are AB=13, BC=21, CA=20.

   a. 12
   b. 16
   c. 5
   d. 25
   e. 11

6. Suppose that x is such that the equation $x = 1/(x-1)$ holds. Of the following, what is a possible value of x^2?
   a. 2
   b. $1 + x$
   c. $(1 - x)$
   d. 0
   e. $(x - 1)^2$

7. A website is attracting 448,000 users per day. Suppose that users only visit the site between 8am and 10pm, and do so evenly between these time points. Before noon, two percent of users click on ads displayed on the website. After noon, only one percent of users click on ads. How many users click on ads between 11:30am and 12:30pm?
   a. 960
   b. 320
   c. 160
   d. 480
   e. 640

8. You aim is to run a 10km race in 1 hour. During the race, when you pass the 6km mark, you look at your watch and realize that the time elapsed since the start is 40 minutes. What average pace, in minutes per 1000m, should you target for the rest of the race to achieve your time goal?
   a. 8
   b. 5
   c. 6
   d. 2
   e. 10

9. Take graph A, described by the equation $x^2 + y^2 = 8$ and graph B, described by $xy = 1$. In how many points do graph A and graph B intersect?
   a. 0
   b. 1
   c. 2
   d. 3
   e. 4

10. You are organizing the holiday party of a company. The workers notified you about their food preferences; there are vegetarians and non-alcohol consumers. In total twenty percent of the workers indicated that they are vegetarian. Forty-five percent of these people do not consume alcohol either. You also know that nineteen percent of the workers are non-vegetarian and do not consume alcohol. For how many people can both meat and alcohol be served if there are 200 workers at the firm?
   a. 61
   b. 78
   c. 93
   d. 122
   e. 144

Solutions

Highlight the line below to reveal the solutions.