



Rocket City Math League Mercury Test

**2004-2005
Round 1**

Answers must be written inside the adjacent answer boxes. All answers must be written in exact, reduced, simplified, and rationalized form. All decimals and mixed numbers must be written as improper fractions, and all times must specify AM or PM (unless requested otherwise in the problem). **No calculators, books, or other aides may be used.**

<p>1. Ecapsevoli, depicted in the picture to the right, needs help finding out his favorite number. Ecapsevoli dislikes numbers that are not divisible by the number of antennae that he has. He also despises the factors of 36 and any non-positive numbers. Ecapsevoli's favorite number can be found in the set of numbers $\{1,0,4,3,9,5,7,6,8,2\}$. Which number is Ecapsevoli's favorite? (1 point)</p>		
<p>2. NASA plans to launch a shuttle from the Earth to the Andromeda Galaxy, which is 56 light years away. A single fuel cell can carry the shuttle a distance of 3.5 light years. What is the least number of fuel cells necessary for the shuttle to make a trip from the Earth to the Andromeda Galaxy and back? (1 point)</p>		
<p>3. Aldrin is older than Armstrong by five years. Armstrong is three more than twice Grissom's age. How many years older than Chaffee is Aldrin, if Chaffee is three and Grissom is four years older than Chaffee? (1 point)</p>		
<p>4. The stars in the following true equations represent real numbers. Find A. (1 point)</p> $(\star + \blackstar)^2 = 25 \quad \star^2 + \blackstar^2 = 10 \quad (4\star\blackstar) = A$		
<p>5. 250 aliens are taking a field trip to see the Earth. Rule #293847 states that each alien must wear exactly 20 pounds worth of shoes so that it won't float away after landing on Earth. There are 10 thousand shoes, and a group of 5 shoes weighs 4 pounds. How many shoes will be left over if all 250 aliens abide by Rule #293847? (2 points)</p>		
<p>6. Gus plans to watch a Star Trek Marathon, which starts at 6:30 a.m. Each episode is 65 minutes long, and there are 29 two-minute commercial breaks over the course of the entire marathon. If there are 12 episodes, at what time will the Marathon end? (2 points)</p>		
<p>7. Planet X is 16 bertons away from Earth. If 8 bertons are equal to 7 jindoes and 28 jindoes are equal to 12 deedoers, then how many deedoers away from Earth is Planet X? (2 points)</p>		
<p>8. Zork has *2.25 in Martian money. His *2.25 is made up of 12 Semids and Retrauqs, which are coins in the Martian currency. If Semids are worth *0.10 each, and Retrauqs are worth *0.25 each, how many Semids does Zork have? (2 points)</p>		
<p>9. Five Martians are pictured below. Neb is frowning and has the same kind of antennae as Nelle does. Yrral and Nitsuj both are smiling but only one has three eyes. Nivek, Nelle, and Nitsuj all have the same number of eyes. Nelle is pictured to the left of Nivek. Which Martian is smiling and has curved antennae? (3 points)</p>		
<p>10. Sheen finds a rock from outer space. A message on the space rock reads: "$A**B = (A + B)A^2 - (B/C)$. $3**9 = 105$. The solution for C is the amount of time, in hours, in which I will explode after reaching Earth." If the rock landed on Earth at 2:00 a.m., at what time will it explode? (3 points)</p>		
<p>11. Woody can paint 1 spaceship in 7 hours. Buzz Lightyear can paint 2 spaceships in 26 hours. If Woody and Buzz work together, how many spaceships can they paint in 182 hours? (3 points)</p>		
<p>12. A clock that is zapped by a Martian ray gun at 12:37 a.m. will fall seven minutes further behind the actual time each following day. What will the degree measure of the smaller angle formed by the minute hand and hour hand be exactly 120 hours after the clock is zapped? (4 points)</p>		