



MASTERTEAM IX

October 2008



Dear Students,

You will have 90 minutes to do the quiz, which consists of 40 multiple-choice questions. To answer them, you must decide which of these answers are correct (only one each time) and put the letter (a, b, c, or d) associated with the given answer into the grid on your answer card.

1. You are female. What relationship to you is your father's only son-in-law's mother-in-law's only daughter?
a.) **It is you.** b.) It is your sister. c.) It is your mother. d.) It is your daughter.
2. When you know it takes five cats five minutes to catch five mice, how long will it take for 100 cats to catch 100 mice?
a.) 100 minutes **b.) 5 minutes** c.) 50 minutes d.) 500 minutes
3. I have a wooden cube of three by three by three centimeters. I paint all the surfaces white. After that, I'll take my saw and start sawing it in little cubes of one by one by one. I will have 27 cubes after some sawing. But how many of them will have NO white colour on any surface?
a.) 7 cubes b.) 6 cubes **c.) 1 cube** d.) 0 cubes
4. What body part would Adam and Eve NOT have that ALL persons after them would have?
a.) Tonsils b.) Appendixes c.) Ribs **d.) Navel**
5. How many triangles of all possible sizes can you get from this square of dots?

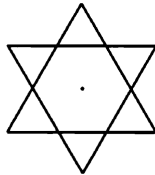
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a.) 16
b.) 8
c.) 14
d.) 12
6. A woman who is awarded a British knighthood will most commonly use this title.
a.) Milady b.) Madame c.) Her Grace **d.) Dame**
7. A baker once forgot to add baking powder (which contains baking soda) to a cake he was baking. How would his cake turn out?
a.) It would be semi-liquid except around the edges (it would not be uniformly heated)
b.) It would taste like anhydrous sodium chloride crystals
c.) It would as a whole cook too fast and the edges would get burnt
d.) It would be comparatively hard and small

8. The second Sunday of this month is Mother's Day in the US. Its first day is celebrated as Labour Day in many countries. In Europe the end of World War II is celebrated on the ninth day of this month. The first Monday is a public holiday in the UK. What month is it?

- a.) **May** b.) April c.) June d.) July

9. When two congruent equilateral triangles share a common center, their union can be a star, as shown. If their overlap is a regular hexagon with an area of 60, what is the area of one of the original equilateral triangles?



- a.) 60
b.) **90**
c.) 120
d.) $60\sqrt{3}$

10. Where are you more likely to find the largest number of living organisms (including microbes) in one gallon of water?

- a.) Brangelina's swimming pool b.) Red Sea c.) **Arctic Ocean** d.) Caribbean Sea

11. Why do fish swim in schools?

- a.) To chase away larger fish b.) To get to college
c.) **To confuse predators** d.) To surround prey

12. Betty's baby is missing. Betty finds that a crocodile has taken the child. Betty asks the crocodile to give the child back. The crocodile tells her that he will return the child if she answers a question correctly, but he will eat the child if she answers incorrectly. His question is thus: Will I eat your baby? Betty replies, "Yes." What will the crocodile do?

- a.) The crocodile will tickle the baby's toes
b.) The crocodile will eat the baby.
c.) The crocodile will not eat the baby.
d.) **The crocodile cannot truthfully do either.**

13. After a gigabyte comes ...

- a.) Megabyte b.) **Terabyte** c.) Byte d.) Kilobyte

14. Which of these is correct: (A): seven and six IS twelve or (B): seven and six ARE twelve?

- a.) **Neither** b.) Both c.) A d.) B

15. What property do all metals share?

- a.) They react with water. b.) They form acidic oxides.
c.) **They conduct electricity.** d.) They are hard.

16. What fruit has its seeds on the outside?

- a.) Gooseberry b.) **Strawberry** c.) Blueberry d.) Raspberry

17. What is the correct ending of the proverb: 'It is always darkest before ...'
- a.) Daylight savings time. b.) I open my eyes.
c.) The dawn. d.) The new day begins.
18. It is the only vegetable or fruit that is never sold frozen, canned, processed, cooked, or in any other form but fresh. What is it?
- a.) Leek b.) Kiwi c.) Banana **d.) Lettuce**
19. According to Moore's law computational power doubles ever 18 months. If so, how long will it take computers to increase their power 1000 times?
- a.) 5 years **b.) 15 years** c.) 10 years d.) 9000 months
20. A man is asked what his daughters look like. He answers, "They are all blondes, but two, all brunettes, but two, and all redheads, but two." How many daughters does he have?
- a.) 9 b.) 6 **c.) 3** d.) 4
21. The river is 4100 inches wide. There is a bridge, which spans the river. During a recent survey of the area it was found that one seventh of the overall length of the bridge was on one side of the river and one eighth of the bridge was on the other side of the river. How long is the bridge?
- a.) 3234 inches **b.) 5600 inches** c.) 3003 inches d.) 5197 inches
22. As his birthday approaches Mark starts to collect stamps. On the first day of the month he collects one stamp, on the second day he collects two and so on. So by his birthday Mark will have collected 276 stamps altogether. On which day of the month is Mark's birthday?
- a.) On the 20th b.) On the 21st c.) On the 22nd **d.) On the 23rd**
23. A boat has a ladder that has six rungs; each rung is one foot apart. The bottom rung is one foot from the water. The tide rises at 12 inches every 15 minutes. High tide peaks in one hour. When the tide is at it's highest, how many rungs are under water?
- a.) 4 **b.) None** c.) 3 d.) 6
24. There are at least two kangaroos in the enclosure. One of them said: 'There are 6 of us here' and he jumped out of the enclosure. Afterwards, every minute one kangaroo was jumping out of the enclosure saying: 'Everybody who jumped out before me was lying.' This continued until there were no kangaroos left in the enclosure. How many kangaroos were telling the truth?
- a.) 1** b.) 2 c.) 3 d.) 4
25. Which one of the five is least like the other four? Bricks-Roof-Window-Chimney-Wall.
- a.) Roof **b.) Bricks** c.) Wall d.) Chimney

26. Each Martian has antennas on its head. Exactly 1% of the Martian have three antennas, 97% have two antennas and the remaining 2% have 1 antenna. What percent of Martian have more antennas on their heads than the average number of antennas in the whole Martian population?

- a.) 1 b.) 2 c.) 3 **d.) 98**

27. Here is a panel of glyphs below. It is a kind of Sudoku but the numbers are represented by symbols. The sums of the shapes are shown at the end the row and at the base of each column. What is the missing sum?

⌘	⌘	☯	☯	35
⌘	⌘	☯	⌘	26
☯	☯	☯	⌘	36
⌘	⌘	☯	☯	34
29	26	45	??	⊗

- a.) 26
b.) 29
c.) 30
d.) 31

28. Wrestling is conducted

- a.) In a ring **b.) On a padded mat** c.) In an arena d.) In the grounds

29. What will happen if you put one sugar-cube and one ice-cube in a glass of hot water?

- a.) Ice will melt and sugar will dissolve** b.) Ice and sugar will melt
c.) Ice and sugar will dissolve d.) Ice will dissolve and sugar will melt

30. The Japanese art of flower arrangement is known as

- a.) Haiku b.) Kendo **c.) Ikebana** d.) Bonsai

31. Brussels is to Belgium as Casablanca is to

- a.) Spain b.) Algeria c.) Algiers **d.) Morocco**

32. Which colour is the best reflector of electromagnetic radiation?

- a.) Black b.) Green **c.) White** d.) Red

33. If it takes four rat catchers four minutes to kill four rats, how many rat catchers would be needed to catch 50 rats in 50 minutes.

- a.) 50 b.) 200 **c.) 5** d.) 4

34. A palindromic number is one that reads the same backwards as forwards, e.g 13931. What is the difference between the largest 6-digit and the smallest 5-digit palindromic number?

- a.) 989,989 **b.) 989,998** c.) 998,998 d.) 999,898

35. Which statement best describes most plants that grow in arid environments?

- a.) They are unable to store moisture. b.) They do not need to be pollinated.
c.) They have a complex root system. d.) They grow only as ground cover.

36. The distance from the Earth to the sun is about 100 million miles. The speed of light is 186,000 per second, and light takes eight minutes to reach the Earth from the Sun. Let's say that the Sun rose at 6 am this morning, and that by some freak of physics the speed of light is suddenly doubled to 372,000 miles a second. What time will the sun rise tomorrow?

- a.) 5 am b.) 5.30 am c.) 6.30 am **d.) 6 am**

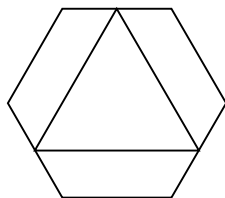
37. If you are standing at the North or south Pole, what time is it?

- a.) It depends on the national time zone of the polar research station sponsoring you.
b.) Whatever time you want it to be since neither of these locations is in any official time. zone.
 c.) This issue is still being addressed by a United Nations commission.
 d.) It is exactly the same time as Greenwich Mean Time or Universal Coordinated Time.

38. 'An eye for an eye, a tooth for a tooth' expresses the concept found in ancient law codes such as those of Hammurabi or the Hebrews of

- a.) **Vengeance and retaliation** b.) Mutilation as a form of punishment
 c.) Charity and forgiveness d.) Innocence until proven guilty

39. A regular hexagon was cut into an equilateral triangle, and three adjacent trapeziums (as shown in the picture). What is the ration of an area of the triangle to an area of the hexagon?



- a.) 9:15
b.) 9:24
 c.) 2:3
 d.) 1:2

40. A teacher wrote two numbers on the blackboard. Kate added them; Betsy multiplied them and Andrew subtracted one from the other. They all got the same result. Providing that their calculations were faultless we can conclude that:

- a.) It is not possible, one child must have made a mistake in their calculations
b.) Both numbers were smaller than ten
 c.) The first digit was smaller than the other one
 d.) It is not possible, all children must have made a mistake in their calculation

Good luck!

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