



The Association for Mathematics Education
of South Africa

KWAZULU NATAL PROBLEM SOLVING

MATHEMATICS CHALLENGE 2006

GRADE 6

DATE: WEDNESDAY 23 AUGUST 2006
DURATION: 1 hour

GENERAL INFORMATION

1. Congratulations on being selected to participate in this challenge.
2. This examination paper consists of 20 questions.
3. Enter your final answer in the correct block on the ANSWER SHEET. Working details are not required.
4. Candidates that qualify to the SECOND ROUND will be required to show full working details.
5. Each question is worth 1 point. No marks are deducted for incorrect answers.
6. Calculators or other computing devices are NOT allowed.
7. Some questions have blanks. You are expected to fill in the blanks.
8. For multiple choice questions, write only the LETTER of your choice.
9. Please do not turn over until the invigilator gives you the signal

1. $2006 + 2006 = \dots\dots\dots$

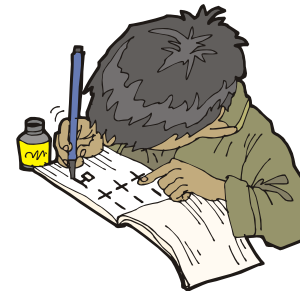
2. $0,5 + 0,05 + 0,005 = \dots\dots\dots$

3. Which is the largest?

- A. 12,1 B. 11,99
C. 12,09 D. 12,11

4. $98 \times 97 + 2 \times 97 =$

5. What is the average of the following marks obtained in a test?



- 54 74 72 76
70 85 92

6. If $2 \times (\square + 1) = 6$.

The $\square = \dots\dots\dots$

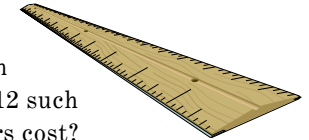
7. Only one of these is correct. Which one?

- A. $354 \times 265 = 93\ 812$
B. $378 \times 119 = 33\ 086$
C. $333 \times 258 = 85\ 914$
D. $369 \times 110 = 40\ 595$

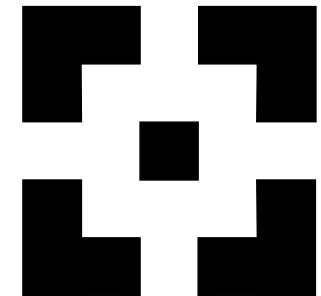
8. Calculate: $\frac{1 + \frac{1}{2}}{1 - \frac{1}{2}}$

9. 3 rulers cost R2,45.

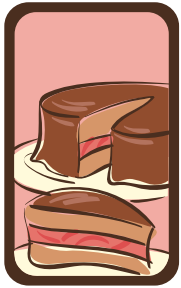
How much will 12 such rulers cost?



10. How many lines of symmetry does the diagram below have?



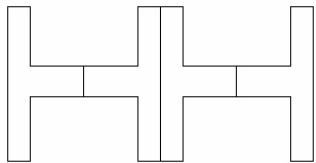
11. A cake must bake for $1\frac{1}{4}$ hours in an oven.



The baking pan is placed in the oven at 7:25pm.

At what time will the cake be ready?

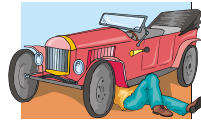
12. How is the H frame on the right obtained from the frame on the left?



- A. Reflection only
- B. Rotation only
- C. Translation only
- D. Reflection or translation
- E. Rotation, reflection or a translation

13. A car comes off the assembly line at the average rate of 8 cars every 5 minutes.

How many cars come off the assembly line in one 8 hour shift?



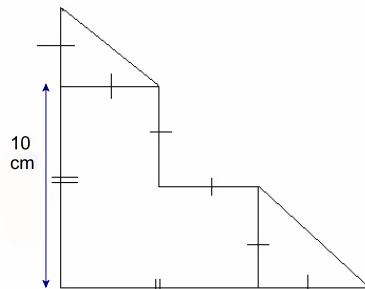
14. Paul painted $\frac{4}{7}$ of the school windows.



He still had 30 windows more to paint.

How many windows are there altogether?

15. Calculate the area of the shape.



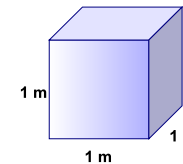
16. A bottle is $\frac{1}{3}$ full of tablets.

If 20 more tablets are added to the bottle then the bottle is $\frac{1}{2}$ full.



How many tablets are there in a full bottle?

18. The drawing represents a cube with sides 1 m long.



What is the most number of cubes, each with edges measuring 500mm, that will fit into this cube?

19. The wooden shape has V vertices (corners), E edges and F faces.



Find $V + F + E$.

20. A slab of chocolate is to be divided between Zama; Khetiwe and Lindiwe as follows:

The ratio of Zama's share to the whole of the slab must be 2 : 5.



The ratio of Khetiwe's share to the whole of the slab must be 1 : 3

What ratio will express Lindiwe's share of the whole slab?