CHALLENGING PROBLEMS IN MATHEMATICS (NO.1)

Here's a chance to win a cash prize of *Rs 300.* Solve the problems given below and send your answers in detail on a separate sheet along with the paper cutting of the problems to *Features Desk, The Times of India, Fraser Road, Patna-800 001* by October 20, 1997. The competition is open to all except those who are teachers of mathematics.

Please superscribe your envelopes with the 'C&C Problems in Mathematics (No.1)' and write your name and address in the space provided in the coupon only.

(In case of more than one all-correct entry, the winner will be decided by draw of lots.)

The questions have been provided by ***Anand Kumar of the Ramanujam School of Mathematics, Patna.*** The correct answers will be published on the Career & Competition page of *The Sunday Times of India* dated October 26, 1997.

1. Determine a function $f(x)$ which satisfy the condition.

$$(x-y)^n f(x+y) - (x+y)^n f(x-y) = 4xy\,(x^2-y^2)^n.\ n \in N$$

2. Determine all function $f(x)$ and $g(x)$ which satisfy the system of equations.

$$f(3x-1) + 3g\,(3x-1) = 3x$$

$$f\left(\frac{x}{x-2}\right) + g\left(\frac{x}{x-2}\right) = x$$

Name...

Occupation...

Address...

....

THE TIMES OF INDIA

Presents

CHALLENGING PROBLEMS In Mathematics

No - 17

by Anand Kumar

Here's chance to win prize (s). Solve the problems given below and send your answers in detail on a separate sheet along with the paper cutting of the problems to **Education Times, The Times of India**, Fraser Road, Patna-800 001 by **July 23 1998**. The Competition is open to all except those who are teachers of Mathematics.

Please superscribe your envelopes with Challenging Problems in Mathematics (No. 17) and write your name and address in the space provided in the coupon only.

(In case of more than one all-correct entry, the winner will be decided by draw of lots.)

The questions have been provided by ***Anand Kumar*** of the ***Ramanjuam School of Mathematics***, Ramna Road,Patna-800 004. The correct answers will be published on the **Education Times, The Times of India** dated **August 5, 1998**.

1. Find the Positive integer x for which $(\sqrt{x})^{\sqrt{x}^{\sqrt{x}}} = 16$
2. Find all positive integers for which $x.x = x^x$

Name _____

Age _____ M/F _____

Occupation _____

Address _____

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CHALLENGING PROBLEMS

in MATHEMATICS

No. 77

By Anand Kumar

Here's your chance to win a prize. Solve the problems given below and send your answers in detail on a separate sheet alongwith the cutting of this column to the **Education Times,** The Times of India, Fraser Road, Patna - 800001 to reach us within 21 days from today. The competition is open to all except those who are teachers of Mathematics.

Please superscribe your envelop with "Challenging Problems in Mathematics No. 77" and write your name and address in the space provided in the coupon only.
(In case of more than one correct entry, the winners will be decided by draw of lots).

The correct answers will be published in the **Education Times** of 19 February, 2001.

Evalute the following limits :

1. $\lim\limits_{x \to 0} \dfrac{1 - \cos x \cdot \cos 2x \cdot \cos 3x}{\sin^2 2x}$

2. $\lim\limits_{x \to 0} \dfrac{\sqrt[m]{1 + ax}\,\sqrt[n]{1 + bx} - 1}{x}$

Name_____

Age _____

Occupation _____

Address _____

Winners of Challenging Problems in Mathematics No. 75

1st Prize : -- Sumeet Jha, Pankaj Niketan, West Patel Ngr, Pat.
2nd Prize : -- Gunjan Kumar Mallik, C/174, Police Colony, Patna
3rd Prize : -- Rajeev Ranjan, PNB Colony, Danapur, Patna

THREE EXCITING PRIZES FOR THE WINNERS

1st Prize : 30 Hrs. Internet Surfing
2nd Prize : 20 Hrs. Internet Surfing
3rd Prize : 10 Hrs. Internet Surfing

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