UNIVERSITY OF SASKATCHEWAN
Department of Mathematics & Statistics
Mathematics 101.3 Quiz #1

January 31, 2001 Time:50 minutes Instructor: *Doug MacLean*

CLOSED BOOK — NO CALCULATORS PERMITTED
Each question is worth 4%
The possible answers to all questions are the digits in the **ANSWER SET:**

(A) 0 (B) 1 (C) 2 (D) 3 (E) 4 (F) 5 (G) 6 (H) 7 (I) 8 (J) 9

If $\frac{8}{9} - \frac{7}{8}$ is written in its simplest form as $\frac{a}{10b + c}$, where a, b, and c are digits, then

(1) $a =$ **(2)** $b =$ **(3)** $c =$

$x^2 + 10x + 32$ is to be written in the form $(x + a)^2 + b$ by completing squares. We must have:

(4) $a =$ **(5)** $b =$

$9x^2 + 126x + 405$ is to be written in the form $a[(x + b)^2 - c]$ by completing squares. We must have:

(6) $a =$ **(7)** $b =$ **(8)** $c =$

If $a = \left[(x - 1)^{\frac{4}{12}}\right]^3 - (x - 1)^{\frac{1}{3}} + 6$, then
(9) $a =$

If $x = 9$ and $h = 1$, then
(10) $\left(\frac{x + h}{x - h}\right)^{-\frac{2}{3}} \cdot \frac{x + h}{\sqrt[3]{x^2 - h^2}} \frac{\sqrt[3]{(x - h)(x^2 + xh + h^2)}}{(x^3 - h^3)^{\frac{1}{3}}} =$

…over

If $a = 9$, then **(11)** $\dfrac{\left(\frac{4a^3}{9}\right)^{\frac{1}{2}} - \frac{2}{3}\sqrt{a}}{a-1} =$

The roots of $5x^2 + 7x + 2 = 0$ in their simplest form are $-A$ and $-\dfrac{B}{C}$. We must have:

(12) $A =$ **(13)** $B =$ **(14)** $C =$

The polynomial $p(x) = 6x^4 + x^3 - 25x^2 - 4x + 4$ can be factored in the form $(x-a)(x+b)(cx+1)(dx-1)$, where a, b, c, and d are digits. Their values are:

(15) $a =$ **(16)** $b =$ **(17)** $c =$ **(18)** $d =$

$\dfrac{\sqrt{7}-\sqrt{5}}{\sqrt{7}+\sqrt{5}}$ can be simplified to the expression $a - \sqrt{10b + c}$, where a, b, and c are digits. Their values are:

(19) $a =$ **(20)** $b =$ **(21)** $c =$

The inequality $10 - 7x < 4$ has solution of the form $\left(\dfrac{a}{b}, \infty\right)$, where a and b are positive digits.
The values of a and b are:

(22) $a =$ **(23)** $b =$

If we solve the inequalities $-2 \le \dfrac{x-5}{2} \le 2$, the solution is an interval $[a, b]$, where a and b are positive digits.
The values of a and b are:

(24) $a =$ **(25)** $b =$
