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

October 6, 1999 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 $\frac{7}{11} - \frac{3}{5}$ is written in its simplest form as $\frac{a}{10b+c}$, where a, b, and c are digits, then

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

$x^2 + 6x + 10$ is to be written in the form $a(x+b)^2 + c$ by completing squares. We must have:

(4) $a =$ **(5)** $b =$ **(6)** $c =$

$5x^2 + 30x + 40$ is to be written in the form $a(x+b)^2 - c$ by completing squares. We must have:

(7) $a =$ **(8)** $b =$ **(9)** $c =$

(10) If a is the slope of the line through the points $(-5,-3)$ and $(-2,3)$, then a is:

(11) Let $f(x) = -\frac{x^3}{(x-3)^3}$. Find $f(2)$

over

The roots of $x^2 - x - 1 = 0$ in their simplest form are $\frac{A \pm B\sqrt{C}}{D}$. We must have:

(12) $A =$ **(13)** $B =$ **(14)** $C =$ **(15)** $D =$

The polynomial $p(x) = 15x^4 - 2x^3 - 16x^2 + 2x + 1$ 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:

(16) $a =$ **(17)** $b =$ **(18)** $c =$ **(19)** $d =$

$\frac{2\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$ can be simplified to the expression $a - b\sqrt{c}$, where a, b, and c are digits. Their values are:

(20) $a =$ **(21)** $b =$ **(22)** $c =$

If we solve the inequality $\left| \frac{3 - x}{2} \right| \geq 2$, the solution is an interval of the form $(-\infty, -a] \cup [b, \infty)$. The values of a and b are:

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

---

(25) The y-intercept of the line perpendicular to the line $y = -\frac{x}{9}$ which passes through the point $(-1, 0)$ is:
