

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

Early October, 1999

Time: 50 minutes

Instructor: *Doug MacLean*

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CLOSED BOOK — NO CALCULATORS PERMITTED

Each question is worth 4%

The possible answers to all questions are the digits in the **ANSWER SET**:

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

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If  $\frac{7}{12} - \frac{3}{5}$  is written in its simplest form as  $\frac{-a}{10b+c}$ , where  $a, b$ , and  $c$  are digits, then

(1)  $a =$

(2)  $b =$

(3)  $c =$

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$x^2 + 8x + 20$  is to be written in the form  $a(x+b)^2 + c$  by completing squares. We must have:

(4)  $a =$

(5)  $b =$

(6)  $c =$

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$3x^2 + 12x + 4$  is to be written in the form  $a(x+b)^2 - c$  by completing squares. We must have:

(7)  $a =$

(8)  $b =$

(9)  $c =$

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(10) If  $-a$  is the slope of the line through the points  $(5, -3)$  and  $(-1, 3)$ , then  $a$  is:

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

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The roots of  $x^2 - 8x + 16 = 0$  in their simplest form are  $\frac{A \pm B\sqrt{C}}{D}$ . We must have:

(12)  $A =$

(13)  $B =$

(14)  $C =$

(15)  $D =$

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

(16)  $a =$

(17)  $b =$

(18)  $c =$

(19)  $d =$

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$\frac{4 - 2\sqrt{2}}{2 - \sqrt{2}}$  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)  $c =$

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

(23)  $a =$

(24)  $b =$

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

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