

Mahidol University International College
Midterm Examination, Third Trimester 2015-2016

Course: ICNS 015 Refresher Mathematics

Date: June 11, 2016

Time: 10:00-11:50

Total Page 8

Name

ID No.Instructor's Name: Seat No.

Instruction

1. There are 20 question with total score 80 points (will be recorded as 35%).
 2. This is a close book examination. Students are not allowed to bring books, notes, a dictionary or calculator into the examination room.
 3. **Write your name, ID. No., and Instructor's Name on every page.**
 4. Answer all questions in the **provided sheets**.
 5. This set of examination papers is certified true by the instructor in charge. Mistakes and errors should not exist. Therefore, any other enquiry and misconception about the examination paper is the students consideration and responsibility.
 6. Students found cheating during the examination will be penalized according to the universitys examination policy.
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If $ax^2 + bx + c = 0$, where a, b , and c are real number and $a \neq 0$ then,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

1) Circle all integers: 4.0, -10.125, $2\sqrt{9}$, $\sqrt{7}$, $\frac{2}{8}$, 0, $3\sqrt{\pi}$, 3.25 (4 points)

2) Simplify and show your answer in positive exponents $\left(\frac{x^{12}}{256}\right)^{-4/3}$ (4 points)

3) Rationalize denominator and simplify: $\frac{1}{\left(\frac{\sqrt{3} x^{-2}}{\sqrt{81} x^3}\right)^2}$ (4 points)

4) Rationalize denominator and simplify: $\frac{200x}{\sqrt[5]{800x^3y}}$ (4 points)

5) Rationalize denominator and simplify: $\frac{\sqrt{75} - 1}{\sqrt{3}}$ (4 points)

6) Simplify and show your solution as a fraction: (4 points)

$$3 - 7(4 + 3 \times 15 \div 9 - 2) + \frac{3}{7}$$

7) Simplify and show your solution as a fraction: (4 points)

$$\frac{4}{5} - \frac{21}{9} + \sqrt{\frac{32}{27}} \div \sqrt{\frac{72}{75}}$$

8) Simplify and show your solution as a fraction:

(4 points)

$$\frac{2}{4} + \frac{2}{5} - \frac{2}{6} + \frac{2}{7}$$

9) Simplify and show your solution as a fraction:

(4 points)

$$0.05 + 0.064 \times 0.016 \div 0.0008$$

10) Simplify

$$(\sqrt{5} - 3\sqrt{2})(\sqrt{20} + 6\sqrt{2})$$

(4 points)

11) Solve the following equation: (4 points)

$$5(y - 7) - 2(3y - 5) = 3y$$

12) Solve the following equation: (4 points)

$$x + \frac{x}{2} + \frac{x}{3} = \frac{6}{11}$$

13) Solve the following equation: (4 points)

$$\frac{3x - 4}{x - 3} - \frac{3x + 13}{x + 3} = \frac{30}{x^2 - 9}$$

14) Solve the following equation:

(4 points)

$$5 + \sqrt{1 - 5x} = 11$$

15) Solve the following equation:

(4 points)

$$\sqrt{y} + \sqrt{y + 5} = 5$$

16) Completely factor $x^2(x - 3) - 16(x - 3)$ (4 points)

17) Completely factor $6x^2 + 7x - 3$ (4 points)

18) Solve for x : $3x^2 + 9x - 30 = 0$ (4 points)

19) Solve for x :

$$0.6x^2 + 0.4x - 1.2 = 0$$

(4 points)

20) Solve for x :

$$x^2 = \frac{2x + 5}{3}$$

(4 points)