

**Division of Arts and Sciences**

**College Math**

**Midterm Exam**

Student Name:

Date:

Instructor:

Lucie Mingla

College Math – MAT 105

Fall Semester 2014

**This exam is required by ASA Administration. Answer all questions and show accompanying detailed solutions ONLY on these pages to receive full credit.**

* *No Cell phones or any electronic devices are allowed during the exam.*
* *Once the final exam begins, students cannot leave the room until the exam is finished.*
* *No scrap paper is allowed during the exam.*

**Use the laws of exponents to simplify:**

1. $(-4x^{10}y^{5})(3x^{5}y)$
2. $\left(\frac{24x^{8}y^{-2}}{36x^{5}y^{3}}\right)^{3}$
3. **Add** $8x^{4}-7x^{2}+8 and -11x^{2}+3x-7$
4. **Find the difference of** $6y^{3}-3y^{2}+7 and -y^{3}+7x^{2}-5$

**Multiply polynomials and simplify if possible:**

1. $5x^{2}y\left(2x^{4}-3xy^{2}+4x\right)$
2. $\left(x^{2 }-3\right)(5x+4)$
3. $(5x+2)^{2}$

 **Solve linear equations:**

1. $4\left(3x-2\right)=10x-2$
2. $-17y-9y+18=-8$

1. $ $ $\frac{5x}{6}-\frac{1}{3}=\frac{3x}{4}$

**Factor completely the following expressions:**

1. $10x^{3}y^{5}-15x^{2}y^{3}+20x^{3}y$
2. $x^{2}-2x-48$
3. $x²-6x+9$
4. $8y^{2}-32$

**Solve second degree equations:**

1. $x^{2}-3x=40$
2. $x^{2}+5x=24 $

**Simplify and reduce to the lowest terms**

1. $\frac{3x-15}{x^{2}-25} $
2. $\frac{x^{2}+2x-35}{x^{2}-49}$

**Multiply and divide rational expressions:**

1. $\frac{32x^{10}y^{12}}{20x^{20}}∙\frac{15x^{5}}{16}$
2. $\frac{5x^{3}}{x^{2}-16}÷\frac{15x-30}{x^{2}+ 2x-8}$

**Add expressions:**

1. $\frac{10x-5}{2x-3}+\frac{4x-16}{2x-3}$
2. $\frac{y+1}{y-2}-\frac{4y+7}{5y-10}$

**Solve rational equations.**

1. $\frac{3}{4}-\frac{2}{x}=\frac{5}{8}$
2. $\frac{3x-2}{4}=\frac{3x-8}{6}$

**Solve this equation using Quadratic Formula** $ x=\frac{-b\pm \sqrt{b^{2}-4ac}}{2a}$

1. $5x^{2}-4x-1=0$

**Simplify the radical expression.**

1. $ \sqrt{75x^{10}y^{9}z^{2}}$