Math 095
Practice Exam-Final

2.1 **Functions**

1 Find the function values for $f(x) = 5x^2 + 4x$

f(1)  f(0)  f(-1)

Write the domain for:

a) $f(x) = 5x^2 + 4x$

b) $f(x) = \sqrt{x-1}$

c) $f(x) = \frac{1}{x-1}$

2.4**Linear Functions**

1) Determine the slope and y-intercept. Then draw a graph by hand of

$f(x) = -\frac{5}{2}x + 4$

2) Find a linear function whose graph has the given slope and y-intercept

Slope=2/3  y-intercept=(0,-9)

3) find the slope between these pair of points (6,9) and (4,5)

2.5 **More Linear Functions**

1) Write an equation of the line parallel to the given line with the given y-intercept

$f(x) = -\frac{5}{2}x + 4$  y-intercept=(0,-9)

2) 1) Write an equation of the line perpendicular to the given line with the given y-intercept

$f(x) = -\frac{5}{2}x + 4$  y-intercept=(0,-9)

4.1 **Inequalities and interval notation**

1) Write the solution set using set and interval notation

a) $y<6$

b) $x\geq -7$

c) $-20y<-6$

4.2 **More Interval Notation**

1) Write the solution set using set and interval notation

a) $y<6$ or $y<-2$

b) $-1 <x <7$

c) 6>2a-1 or -4<-3a+2
d) x>2 and x<-2

4.3 **Absolute Values**
1) Write all solutions for:
a) |x|=3
b) |x|=-3
c) |7x-2|=9
d) |x+4|=|2x-7|

6.1 **Rational Expression-Multiply and Divide**
1) Multiply and if possible simplify: $\frac{y^2-25}{5y+25} * \frac{y+5}{y-5}$
2) Divide and if possible simplify: $\frac{24x^6}{6y^5} \div \frac{3x}{12y^3}$ (no negative exponents)

6.2 **Rational Expressions Add and subtract**
1) Adding and Subtracting Rational Expressions: Perform the indicated operation and simplify
a) $\frac{a^2}{a-b} + \frac{b^2}{b-a}$
b) $4 - \frac{x-3}{x-4}$

6.3 **Rational Expressions-Simplify**
Simplify.
1) $\frac{7+\frac{1}{a}}{\frac{1}{a}-3}$

2) $\frac{\frac{x^2-x-12}{x^2-2x-15}}{\frac{x^2+8x+12}{x^2-5x-14}}$

6.4 **Rational equations**
a) Solve: $\frac{x-2}{x^2-9} = \frac{1}{x^2-9}$
b) Solve: $\frac{5}{x+2} - \frac{3}{x-2} = \frac{2x}{4-x^2}$

6.5 **Applications**

Bill can deliver papers three times as fast as Stan can. If they work together, it takes them one hour. How long would it take each to deliver the paper alone?

**7.1 Radical Expressions:**

1) Simplify
   a) $\sqrt{36x^2}$
   b) $\sqrt{x^{10}}$
   c) $\sqrt{x^2+2x+1}$

**7.2 Exponents and Rational Functions**

1) Write an equivalent expression using radical notation:

a) $(a^2b^2)^{\frac{1}{5}}$

2) Write an equivalent expression using exponential notation

a) $\sqrt[7]{x^3y^2z^2}$

3) Use the laws of exponents to simplify:

a) $\dfrac{5^{\frac{3}{4}}}{5^{\frac{1}{8}}}$

b) $5^{\frac{1}{8}} * 5^{\frac{3}{4}}$

c) $\left(5^{\frac{1}{8}}\right)^{\frac{1}{2}}$

**7.6 Solving Radical Equations**

1) Solve for x
   a) $\sqrt[2]{5x+1} = 8$

   b) $\sqrt[2]{5x+1} = -8$

**7.8 The Complex Numbers**

1) Let a=3+2i and b=3+6i

a) a+b=
b) a-b=
c) a*b=
d) a/b=

### 8.1 Quadratic Equations

1) Solve for x

a) $7x^2 = 21$

b) $25x^2 + 4 = 0$

c) $x^2 - 10x = 22$

### 8.2 The Quadratic formula

1) Solve for x

a) $x^2 + 7x - 3 = 0$

b) Let f(x)= $3x^2 - 5x - 1$. Find the x-intercepts of f(x)

### 8.6 Quadratic Functions and their graphs,

1) Graph by hand,label the vertex and draw the axis of symmetry:

a) $f(x) = x^2$

b) $f(x) = -2x^2$

c) $f(x) = (x+1)^2$

d) $f(x) = x^2 + 2$

e) $f(x) = 2(x+1)^2 + 2$