Final Examination Review
Math 212

Chapter 1

1) Evaluate for x = 8, y = 3: $x^2 - 4\left(x - y\right)$

2) Express in set-builder notation and graph on the number line: [-3, 1)

Simplify

3) $-\left|-7\right|$ 4) -20 – (-5) 5) (-3)(-11)

Simplify. Positive exponents only.

6) 4(-5) – 6(-3) 7) $\dfrac{10 \div 2 + 3 \bullet 4}{\left(12 - 3 \bullet 2\right)^2}$ 8) 4(5y – 3) – (6y + 3)

9) $\dfrac{a^{-4}b^7}{c^{-3}}$ 10) $\left(-3y^8\right)\left(-7y^4\right)$ 11) $\dfrac{-24a^8x^2y^{-2}}{-8a^{-3}x^{-5}y^{-1}}$

Solve the equation

12) 8y – 3 = y + 43 13) $\dfrac{1}{2}\left(4x+8\right)-16=-\dfrac{2}{3}\left(9x-12\right)$

Chapter 2

1) Find the domain, range in roster form: [(1, 2)(3, 4)(5, 6)}

2) If g(x) = $3x^2+5$, find g(5b)

If f(x) = x – 6 and g(x) = $2x^2$ find

3) (f + g)(5) 4) (gf)(x)

Linear Functions

5) Find slope and y-intercept: y = -3x + 2

6) Find slope of a line that passes through the points (-3, -2) and (2, 5)

7) Rewrite in slope intercept form: 3x + y = 4

8) Rewrite in standard form: y = - $\dfrac{1}{2}$ x + 3

9) Write in standard form a line that has slope of -6 and passes through (-2, -4)

Lines

10) Find the slope of a line that is parallel to and perpendicular to 8x + y = 11

Chapter 3

1) Solve the system of equations three ways: $\begin{cases} 6x - y = -5 \\ 4x - 2y = 6 \end{cases}$

Chapter 4

Solve the inequality and graph the solution set on the number line

1) $8x + 3 > 3(2x + 1)$ 2) $7(x + 4) - 13 \le 12 + 13(3 + x)$

Graph the solution set on the coordinate plane

3) $2x + y > 6$ 4) $\begin{cases} x + y \le 4 \\ y > 2x - 4 \end{cases}$

Chapter 5

1) Find the leading coefficient and the degree of the polynomial: $x^5 + 3x^2y^4 - 7xy + 9x - 2$

Simplify completely:

2) $\left(10x^4y^2 - 3x^2y^2 + 2xy\right) + \left(-16x^4y^2 - xy - 4x^2y\right)$

3) $\left(3x^4y^2 + 5x^3y - 3y\right) - \left(2x^4y^2 - 3x^3y - 4y + 6x\right)$

Multiply

4) $\left(11w^4x^2y\right)\left(-3w^6xy^5\right)$ 5) $-4x^2y\left(3w^4x^2 - 7wx^3 + 6\right)$

6) $\left(3x - y\right)\left(2x + 5y\right)$ 7) $\left(2x + 5y\right)^2$

Factor Completely

8) $32x^4 + 2x^3 + 8x^2$ 9) $x^2 - 9x + 20$ 10) $8x^3 - 40x^2 - 48x$

11) $5x^2 - 14x + 8$ 12) $9x^2 - 100$ 13) $81x^4 - 16$

14) $4x^2 + 12xy + 9y^2$ 15) $x^3 - 125$

Solve the equation

16) $3x^2 + 10x = 8$ 17) $4x^2 = 12x - 9$

Chapter 7

Evaluate:

1) $-\sqrt{36}$ 2) $-\sqrt{144} + \sqrt{25}$ 3) $\sqrt[3]{-27}$

4) Find the domain: f(x) = $\sqrt{3x - 15}$

Simplify:

5) $-\sqrt{-300}$ 6) $\sqrt{-63}$ 7) i^2

Chapter 8
Solve the equation:

1) $5x^2 = 25$

2) $3(x-2)^2 = 36$

3) $x^2 - 3x - 5 = 0$

4) $9x^2 + x = -2$

5) $2x(x-2) = x + 12$

Write a quadratic equation in standard form that has the given solution set.

6) {-3, 5}

7) {-6i, 6i)

Find the following then graph on the coordinate plane.

a) Vertex b) intercepts

8) f(x) = $2(x+4)^2 - 3$

9) f(x) = $2x - x^2 + 3$