



**Department of Mathematics  
Moreno Valley College**

**Mathematics 52  
Course ID: (27488 and 27501)  
Take-Home Final Exam  
Fall 2016**

**Dates: November 7<sup>th</sup>, 2016 and November 8<sup>th</sup>, 2016  
Times: 8:00 AM – 10:05 AM and 2:00 PM – 4:05 PM**

**Professor: Mohammed Kaabar**

<b>P1</b>	<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>EC</b>	<b>Total</b>
<b>30</b>	<b>30</b>	<b>20</b>	<b>20</b>	<b>10</b>	<b>100</b>

**Student Name:.....**

**Student ID:.....**

**Exam Instructions:**

- 1- This exam has 4 questions and one extra credit question.**
- 2- Make sure you answer all questions.**
- 3- Cheating = “F”**
- 4- Make sure to include this page in your submission materials.**

**Student Signature:.....**

**Problem 1 (30 points):** Factor each of the following:

a.  $(x^2 - 49)$

b.  $(x - 16)$

c.  $(x^3 - 8)$

d.  $(25x^2 - 36)$

e.  $(x + y)^2$

f.  $(x - y)^2$

g.  $x^3 - y^3$

h.  $x^3 + y^3$

i.  $(9x^2 - 4)$

j.  $x^2 - y^2$

**Problem 2 (30 points):** Simplify each of the following:

a.  $7y^2x^3(-3x^{-3}y^{-5})$

b.  $(2x - 1)^2$

c.  $\left(\frac{2x^2y^{-3}}{x^{-3}y^5}\right)^{-3}$

d.  $\frac{1}{2^{-3}}$

e.  $\frac{2^0-1}{2^{2-2}}$

f.  $\frac{25x^2-16}{5x+4}$

g.  $\frac{2x^2+8x}{x+4}$

h.  $(-3)\frac{(x^2-y^2)}{(x-y)(x+y)}$

i.  $\frac{1}{x^{-\frac{1}{2}}}$

j.  $\frac{2x-12}{2(x-6)}$

**Problem 3 (20 points):** Solve **EACH** of the following **FOUR** problems:

1- Solve for  $z$  given that  $(z + 6)^{\frac{1}{2}} = z$

2- Solve for  $x$  given that  $|-3x + 5| = 13$ .

3- Solve for  $m$  given that  $\frac{3m}{m+7} - \frac{8}{5} = 0$

4- Solve for  $x$  given that  $x^2 - x - 6 = 0$ .

**Problem 4 (20 points):** Answer **EACH** of the following **Four** parts:

**Part a:** In class, we talked about the difference between quadratic equation and linear equation. Discuss how we can make the quadratic equation a linear equation.

**Part b:** In class, we talked about three cases of solution for quadratic equations. Discuss each of the three cases.

**Part c:** In class, we talked a lot about the general forms of quadratic equation and polynomial. Discuss both forms as we did in our class.

**Part d:** In class, we talked about simplifying (evaluating) the rational expressions. Can you simplify each of the following two rational expressions?

1-  $\left(\frac{2x}{5x+7} - \frac{1}{3}\right)$

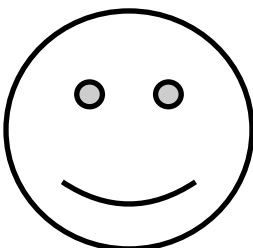
2-  $\left(\frac{2x}{2x+7} - \frac{4}{3}\right)$

**Extra Credit Problem (10 points):** Solve **one** of the **two problems**:

**Problem 1:** Use only **Kaabar X-Method** to solve the following:

$$w^2 + 2 + w = 0$$

**Problem 2:** Write a five-sentence-mathematical paragraph about the application of slope concept in Physics and other life sciences. In your paragraph, make sure to include real life examples and numerical examples, as well as, graphs.



**I wish you best of luck in Final Exam**

**Best Regards**

**Professor: Mohammed Kaabar**

