



**Math Review (<http://goo.gl/rTQmcL>)**  
**Essential Academic Skill Enhancement (EASE) workshop series**



This workshop reviews the basics of algebra through pre-calculus to help prepare you for college calculus.

**We will discuss:**

- Rational Equations
- Radical Equations
- Simple Exponents
- Not-So-Simple Exponents



- Quadratic Equations
- Trigonometry
- Composite Functions

**Assessment Set 1:**

1. Rational Equations:  $\frac{3}{x+2} - \frac{1}{x} = \frac{1}{5x}$  (hint: make the common denominator of  $5x(x+2)$ ).  
*Leave final answer in reduced fraction form*

2. Radical Equations:  $\sqrt{9x^2 + 4} = 3x + 2$

3. Simple Exponents:  $3^{2x-1} = 27$  (hint: What can you do to 27 to make it have base 3?)

4. Not-So-Simple Exponents:  $3(2^{x+4}) = 350$  (hint 1: Isolate the variable first; hint 2: Use natural log because of calculator function)  
*OK to leave final answer in reduced fraction form*

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5. Quadratic Equations:  $2x^2 - 4x - 3 = 0$ ; Round answer to 2 decimal places.

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

6. Trigonometry:  $\cos^2(x) + \cos(x) = \sin^2(x)$  (hint: Use the trigonometric identity to have only 1 trig function:  $\sin^2(t) + \cos^2(t) = 1$ )  
*Leave final answer in "trig function (x) = #" form*

7. Composite Functions:  $f(x) = 2x + 3$  and  $g(x) = -x^2 + 5$ ; find  $f(g(1))$

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**Assessment Set 2:**

8. Rational Equations:  $\frac{n-4}{n+4} = \frac{1}{n-5} + 1$

9. Radical Equations:  $\sqrt{k-9} - \sqrt{k} = -1$

10. Simple Exponents:  $3^{1-2x} = 243$

11. Not-So-Simple Exponents:  $9^{n+10} + 3 = 81$   
*OK to leave final answer in reduced fraction form*

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12. Quadratic Equations:  $4b^2 + 8b + 7 = 4$ ; Round answer to 2 decimal places.

13. Trigonometry:  $4\sin^2x + 5 = 6$ ;  $0 \leq x \leq 360$

14. Composite Functions:  $f(x) = |x - 6| + x^2 - 1$  and  $g(x) = 2x$ ; find  $f(g(3))$