

Name: \_\_\_\_\_

**Math 94 Take-Home Pre-Test**

Answer as many of the following questions as you can. If you genuinely do not know how to solve a problem, even after trying, write "I don't know"; do not guess. You are encouraged to use any notes you still have from previous math classes. You may use a calculator, but try not to rely on it too much.

1A) Evaluate:  $2^3 - 10 \cdot (4 - (-3 + 19)) \cdot 2$

1B) Simplify:  $(-3xy)^3$

1C) Simplify:  $4 \cdot (2a - 3b) + a - 7$

1D) Evaluate:  $|-27 - 3 \cdot 4| - |-36| + |-12|$

1E) Evaluate:  $-5^2 + (-5)^2 - 5^2$

2A) Solve for  $x$ :  $3 \cdot (2x - 8) = 4 \cdot (x - 4)$

2B) Solve for  $x$ :  $0.5x - 0.6 = 1.4 + 0.3x$

2C) Solve for  $x$ :  $4 - 6x > 40$

2D) Solve for  $L$ :  $W + Z = \frac{P - L}{2}$

2E) A price is lowered by 10%, then raised by 10%. The result is \$10. What was the original price?

3A) Sketch  $y = -\frac{1}{3}x + 6$  .

3B) Find the slope of  $2x - 4y = -8$  .

3C) Find the  $x$ - and  $y$ - intercepts of  $5x - 3y = 30$  .

3D) Find the equation of a line through (4, -1) and (6, 8).

3E) What kind of triangle is made by the lines  $y = \frac{3}{5}x$  ,  $y = -\frac{5}{3}x$  , and  $x = 5$  ?

4A) Simplify:  $(2x^4 + x^3 - 8x^2 - 6x) - (6x^4 - 8x^2 + 2x)$

4B) Simplify:  $(2x - 3y) \cdot (2x + 3y)$

4C) Simplify:  $(2x + 1) \cdot (3x^2 - 5x - 3)$

4D) Evaluate:  $(2.4 \times 10^{103}) \cdot (5 \times 10^{291})$

4E) Simplify:  $(24x^3 - 2x^2 - 12x) \div (3x + 2)$

5A) Factor completely:  $3x^3 + 6x^2 - 9x$

5B) Factor completely:  $12t^3 - 75t$

5C) Solve for  $x$ :  $2x^3 - 7x^2 = 15x$

5D) Solve for  $x$ :  $x \cdot (x - 3) = 28$

5E) Find the vertex (highest or lowest point) of  $y = -2x^2 - 4x + 16$ .

6A) Simplify completely:  $\frac{6x^2 + 17x + 7}{2x^2 + 7x + 3}$

6B) Divide and simplify:  $\frac{m^2 + 5m + 6}{m^2 + 8m + 15} \div \frac{m^2 + 2m}{3m^2 + 16m + 5}$

6C) Simplify completely:  $\frac{9 - \frac{1}{y^2}}{3 - \frac{1}{y}}$

6D) Combine and simplify:  $\frac{1}{x-1} + \frac{4}{x^2-1} - \frac{2}{x^2-2x+1}$

6E) Simplify completely:  $1 - \frac{1}{1 - \frac{1}{1 - \frac{1}{x}}}$