PREREQUISITE REVIEW

for **MATH 1314, College Algebra**

1. Multiply:
   a) $(x^2+2)(2x^2-3)$
   b) $(3x+2)(3x-2)$
   c) $(3x-2)^2$
2. Factor completely:
   a) $2x^2-5x-12$
   b) $8x^3-15x^2-2x$
3. Find the intercepts, identify the slope of the line, and graph: $5x-2y=10$
4. Solve for x: $-5<-3(x-1.5)\le 2$
5. Solve for a: $a^2+4a=45$
6. Solve for b: $5b^2-5b+1 = 0$
7. Let $f(x)=x^2+2x-2$ and $g(x)=2-3x$. Find the following:
   a) $f(-1)$ b) $g(-3)$ c) $f(a+2)$
8. Let $f(x)=\dfrac{5}{b+5}-\dfrac{2}{b}$. Find the domain and simplify.
9. Solve for x: $\dfrac{2}{x-1}+1=\dfrac{2}{x^2-x}$
10. Identify the y-intercept, the vertex, and graph: $y=2(x-3)^2-4$
11. Simplify:
    a) $3\sqrt{45}-2\sqrt{125}$
    b) $(-27)^{-\frac{1}{3}}$
12. Simplify: $\dfrac{\dfrac{t^2-25}{t^2+8t+15}}{\dfrac{t-5}{t+9}}$

13. If one side of a right triangle is 3 inches and the hypotenuse is 4 inches, how long is the other side of the triangle?

14. Solve this system of equations: $\begin{aligned} 5x+4y&=-8 \\ 2x-y&=-11 \end{aligned}$

15. Arlene wishes to invest $5000. If she invests part at 7% simple interest, part at 6%, and receives a total of $332 after one year, how much does she invest at each rate?