

Math 114 Spring 2017  
Calculus I HW 1  
Due Friday, January 27

1. (a) Find two real numbers that solve  $x^2 + 7x + 5 = 0$ .  
(b) Factor  $x^3 - 27$ .
2. If  $|f(x)| \leq |x|$  and  $|g(x)| \leq 7 + x^2$ , what can we say about  $|f(x) + g(x)|$ ?
3. If  $|f(x)| \geq 7$  and  $|g(x)| \leq 3$ , what can we say about  $|f(x) + g(x)|$ ?
4. ★
  - (a) Find a pair of real numbers  $x$  and  $y$  such that  $|x + y| < |x| + |y|$ .
  - (b) Find a pair of real numbers  $x$  and  $y$  such that  $|x + y| = |x| + |y|$ .
  - (c) Find a pair of real numbers  $x$  and  $y$  such that  $|x + y| > x + y$ .
5. ★
  - (a) Find a pair of real numbers  $x$  and  $y$  such that  $|x + y| > |x| - |y|$ .
  - (b) Find a pair of real numbers  $x$  and  $y$  such that  $|x + y| = |x| - |y|$ .
  - (c) Find a pair of real numbers  $x$  and  $y$  such that  $|x + y| < x - y$ .