MAT3-119 Calculus of a Single Variable I
Quiz 2 October 30, 2015

solution
name

1. (4 pts.) Let Q(x) be a degree six polynomial function.
   a. What is the natural domain of Q(x)?
   $\mathbb{R}$ or $(-\infty, \infty)$ All poly's have nat. dom $\mathbb{R}$.
   b. How many x-intercepts can the graph of Q(x) have? Briefly justify your answer.
   0 to 6. Fund Thm of Algebra says deg 6 → 6 zeroes.
   c. How many y-intercepts can the graph of Q(x) have? Briefly justify your answer.
   1 vertical line test
   d. Is it possible that $Q(x) \leq 17$ for all real x? Briefly justify your answer.
   yes neg x^6 term would give gen. shape 

2. (2 pts.)
   a. What point is on the graph of $y = b^x$ for every positive number b?
   (0,1) ✓
   b. What point is on the graph of $y = \log_b x$ for every positive number b?
   (1,0) ✓

3. (4 pts.) Consider the function $f(x) = 5\cos(\pi x)$.
   a. What is the period of f?
   $\frac{2\pi}{\pi} = 2$
   b. What is the range of f?
   changes $[-1, 1]$ to $[-5, 5]$