Do not turn in scratch paper for homework or on exams; put your work in the space provided. Henceforth, homework will always be due the next period. You get extra credit if you are the first to find an error in the homework, printed lecture notes or exams.

40(1). \( \lim_{x \to +\infty} \frac{1}{8 - \frac{5}{x^2}} \) 3 symbols, checksum=9

44(1). \( \lim_{\theta \to \infty} \frac{\cos \theta}{3\theta} \). Hint, if you don’t see the answer, plug in larger and larger negative values to see where the ratio is going.
   Alternately, note that \(-1 \leq \cos \theta \leq 1\), divide by \(3\theta\), and use the Sandwich Theorem. 1 symbol

Find the leading term and the limits.

48(2). \( \lim_{x \to -\infty} \frac{2x^3 + 7}{x^3 - x^2 + x + 7} \) checksum=2
   Lead term:
   \( \frac{2x^3}{x^3} = 2 \)
   Limit:
   \( \lim_{x \to -\infty} 2 = 2 \)

58(2). \( \lim_{x \to +\infty} \frac{2 + \sqrt{x}}{2 - \sqrt{x}} \) checksum=1
   Lead term:
   \( \frac{\sqrt{x}}{\sqrt{x}} = 1 \)
   Limit:
   \( \lim_{x \to +\infty} 1 = 1 \)

60(2). \( \lim_{x \to +\infty} \frac{x^{-1} + x^{-4}}{x^{-2} + x^{-3}} \) checksum=0
   Lead term:
   \( \frac{x^{-2}}{x^{-2}} = 1 \)
   Limit:
   \( \lim_{x \to +\infty} 1 = 1 \)