DoNow practice for familiarity and speed Name:

Work these problems rapidly in the space provided.

1. In an arithmetic sequence, the first term is 5 and the third term is 17.

   (a) Find the common difference.

   (b) Write down an equation for S_{10}, the sum of the first 10 terms in the sequence, substituting values for u_1, d, and n. (you do not have to simplify the formula)

2. Given that a geometric sequence begins with $u_1 = 9$ and has a common ratio of $r = \frac{2}{3}$.

   (a) What is the third term of the sequence?

   (b) Write down an equation for u_{10}, the 10th term in the sequence, substituting values for u_1, r, and n. (you do not have to simplify the formula)

   (c) Does the sum of the infinite series have a finite value? Justify your answer in the simplest way possible. (you don't have to write any words, just a short algebraic expression)

3. Round to three significant figures unless otherwise instructed

   (a) 45.0951

   (b) 0.031415926

   (c) 25.36496481 *to the nearest hundredth*

   (d) 2.732×10^{-3}

4. Simplify the expression $\dfrac{x^{-1}}{x^4}$ to one with positive integer exponents and radicals.