Readiness Quiz
TQS 211

You are welcome to use any written homework from Chapter 2, worksheets you completed, and a calculator but no books or class notes. Show *all* your work (algebraically or geometrically) for each and simplify. No credit is given without supporting work.

1. [3] The time T in minutes that it takes Dan to run x kilometers is a function $f(x) = T$. Explain the meaning of the statement $f(5) = 23$ in terms of running.

2. A movie theater has fixed costs of \$5000 per day and variable costs averaging \$2 per customer. The theater charges \$5 per ticket. Let q be the number of tickets sold in a day.

   (a) [1] Find the daily revenue as a function of q.

   (b) [3] Write down the profit collected by the theater as a function of q.

   (c) [1] What number of tickets sold will allow the theater to break even?

3. The worldwide carbon dioxide emission, C, from consumption of fossil fuels was 6.03 billion tons in 1995 and 6.69 billion tons in 2002. Find a formula for the emission C in t years after 1995 if:

   (a) [3] C is a linear function of t.

   (b) [3] C is an exponential function of t.

4. [6] Let $f(x) = (x+2)^2 - 1$. Find the following and then simplify as much as possible:

   $f(2)$ $\qquad$ $f(2+h)$ $\qquad$ $\dfrac{f(2+h) - f(2)}{h}$