Chapter 3 Problems of the Week

1. The brightness of a light source appears to decrease as distance, d, increases. If brightness decreases by $\dfrac{1}{d^2}$, how does the brightness change if the distance is doubled?

2. Consider the expression $x^{\frac{1}{x}}$. If x is a fraction, predict what increasing the value of x does to the value of the expression. Explain your thinking. Test your prediction with a calculator.

3. a) Evaluate 76^2. The square of 76 ends in 76.
   b) What other two-digit number squared also ends in itself?

4. A box measures 2 m by 3 m by 4 m. What is the length of the longest straight pole you could place in the box?