Chapter 11 – Section 11.1 Power Functions

TICKET-IN-THE-DOOR

In order to be prepared for class you must watch the module and complete the following activity. This is due first thing when you get to class.

Define a **power function**.

Check your understanding:
1. Is $y - 25 = (x - 5)(x + 5)$ a **power** function?

2. Write each of the following functions in the form: $f(x) = kx^p$. (Hint: Use $\sqrt[n]{a^m} = a^{\frac{m}{n}}$ and other properties of exponents from algebra to simplify each expression)

   a. $R(t) = \dfrac{4}{\sqrt{16t}}$

   b. $T(s) = (6s^{-2})(4s^{-3})$

   c. $K(w) = \dfrac{w^4}{4\sqrt{w^3}}$

3. Suppose y is **directly** proportional to x. If $y = 1$ when $x = 4$, what is the value of x when y is 5?

4. The volume occupied by a fixed quantity of gas such as oxygen is **inversely** proportional to its pressure, provided that its temperature is held constant. Suppose that a quantity of oxygen occupies a 60 liter volume at a pressure of 14 atmospheres. If the temperature of the oxygen does not change, how many liters will it occupy if its pressure rises to 19 atmospheres? Round to 1 decimal place.