MAT 171 - CLASS NOTES - Section 3.7: Modeling Using Variation

- 1. Direct Variation the following statements are equivalent
 - (a) y varies directly with x
 - (b) y is directly proportional to x
 - (c) y = kx for some non-zero constant k

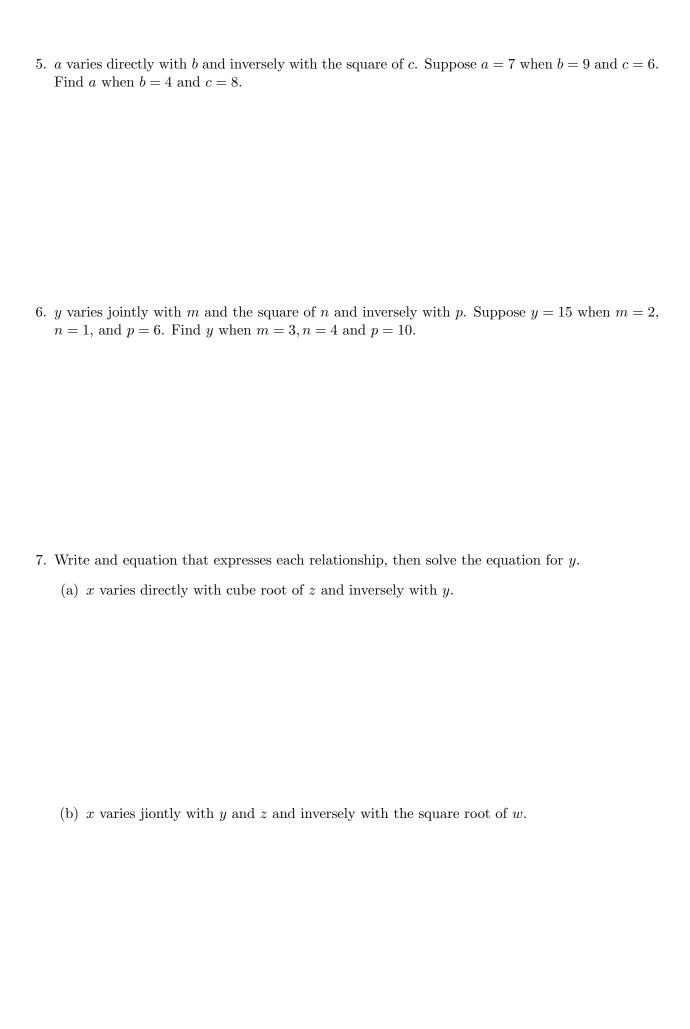
In essence, as the input goes up the output goes up by some proportional amount.

- 2. Inverse Variation the following statements are equivalent
 - (a) y varies inversely with x
 - (b) y is inversely proportional to x
 - (c) $y = \frac{k}{x}$ for some non-zero constang k

In essence, as the input goes up the output goes down by some proportional amount.

3. Suppose y varies directly with x. Suppose y = 45 when x = 5. Find y when x = 13.

4. Suppose y varies inversely with x. Suppose y = 6 when x = 3. Find y when x = 9.



8.	An alligator's tail length, T varies directly with its body length, B . An alligator with a body length of 4 feet has a tail length of 3.6 feet. What is the tail length of an alligator whose body length is 6 feet.

9. Radiation machines used to treat tumors produce an intensity of radiation that varies inversely with the square of the distance from the machine. At 3 meters the radiation intensity is 62.5 milliroentgens per hour. What is the intensity at a distance of 2.5 meters?