Name: 
Math 140 Section _ C1__
Quiz 2 Section 2.5, 3.1

Answer all questions to the best of your ability. Full credit will only be given if all work is shown and
organized and it is clear what your answer is. The quiz is out of 10 points.

1. (3 points) What is the difference between direct variation, inverse variation and joint variation?
   - Y varies directly with x → y = kx
   - Y varies inversely with x → y = \frac{k}{x}
   - Y varies jointly with a and b → y = kab

2. (2 points) Give an example of a relation that is not a function. Give an example of a relation that is a function. Make sure you make it clear which is which.

   People in class → email addresses
   cody →
   Not a function

   People in class → SSN
   cody →
   Nathan → Ashley →
   A function

3. (3 points) Assume G varies directly with the cube of h and inversely with the cube root of f.
   Find the general formula that relates these variables if G = 10 when h = 2 and f = 64. What is
   G when h = 3 and f = 27?

   \[ G = \frac{k h^3}{\sqrt[3]{f}} \]
   \[ G = 10, h = 2, f = 64 \rightarrow 10 = \frac{k \cdot 2^3}{\sqrt[3]{64}} = \frac{k \cdot 8}{4} \]
   \[ k = 5 \]
   \[ G = \frac{5 \cdot h^3}{\sqrt[3]{f}} \]
   \[ h = 3, f = 27 \rightarrow G = \frac{5 \cdot 3^3}{\sqrt[3]{27}} = \frac{5 \cdot 27}{3} = 45 \]

4. (2 points) What is the domain of the function \[ \frac{x}{\sqrt{x-4}} \]?
   The domain is when \( x-4 \geq 0 \) and \( \sqrt{x-4} \neq 0 \)
   \[ \Rightarrow \text{ domain is } \{x : x > 4 \} \]

5. (Extra Credit 1 point) Who is Max Brooks?
   Author and screenwriter, son of Mel Brooks, wrote *World War Z*, obsessed with zombies, coming to Ames, wrote *The Zombie Survival Guide*. 