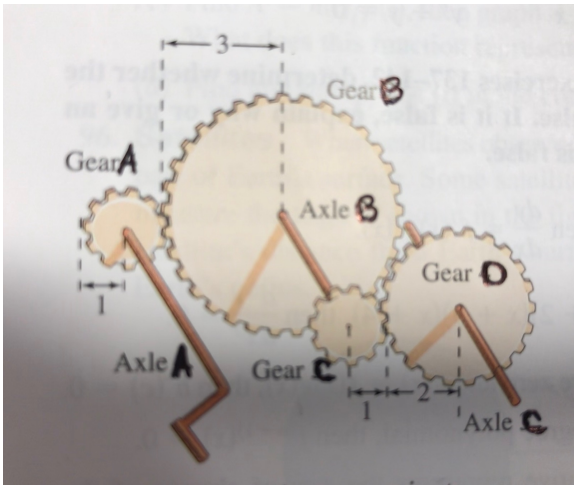
Chain Rule

While working in a group make sure you:

- Expect to make mistakes but be sure to reflect/learn from them!
- Are civil and are aware of your impact on others.
- Assume and engage with the strongest argument while assuming best intent.

1. Things we know about the gears:



   - Gear B & C are on the same axle.
   - Circumference C is computed by $2\pi r$ and r is in the picture.
     - $C_B = 3 * C_A \rightarrow ??$
     - $C_D = 2C_C \rightarrow ??$
   - Let $y = \#$ of rev/min. of Axle A
   - Let $u = \#$ of rev/min. of Axle B
   - Let $x = \#$ of rev/min. of Axle C

   - Find $\frac{dy}{du}$ $\frac{du}{dx}$ $\frac{dy}{dx}$

2. For each f defined below, find $f'(x)$.

   $f(x) = \sin^2(x)$ $f(x) = \frac{1}{1+x^3}$ $f(x) = e^{x^5}$

3. For each of the functions below find their respective derivatives.
   $\sin^2(x^3 - 5)$ $5^{3x^2 \tan(x)}$

   $\log_2(x^4 - 3x)\sqrt{x^3 - 5}$.