WIND STUDY

Wind Study is intended for grades 5-8 and 8-11
Questions posted on: Monday   Answers posted on: Friday
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## 2024 A6   GEAR RATIOS

L1:

A)

To determine the Number of teeth, convert the formula $RPM_A * Teeth_A = RPM_B * Teeth_B$ to the formula $\frac{RPM_A * Teeth_A}{RPM_B} = Teeth_B$. This gives us $\frac{15*22}{10} = Teeth_B$. Solving out this equation gives a final answer of **33 teeth**.

B) The third gear would be turning **clockwise**, as shown by the diagram below. Each subsequent gear spins in the opposite direction of the previous gear.
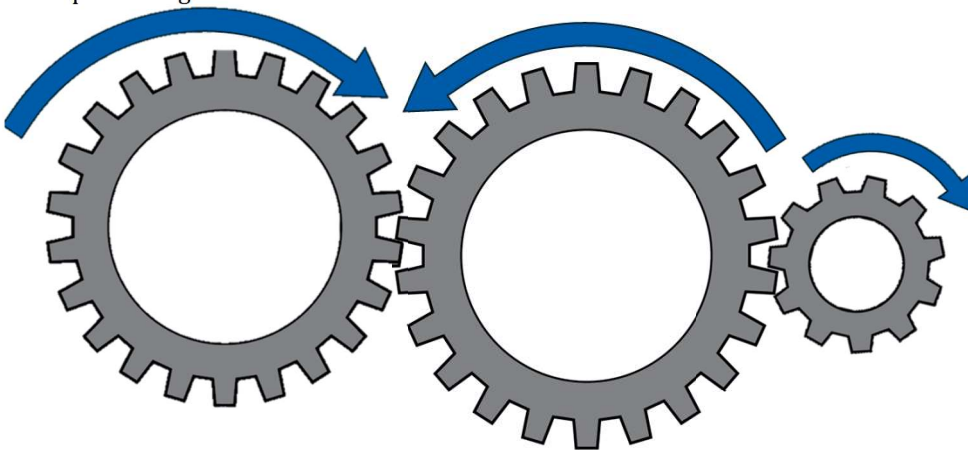
L2: Start by converting the formula $RPM_A * Teeth_A = RPM_B * Teeth_B$ to $\frac{RPM_A * Teeth_A}{Teeth_B} = RPM_B$. Plugging in using the tooth number for the A gear and inner B gear gives us $\frac{16*22}{11}$ = 32 rpm. Note that the inner and outer B gears have the same rpm. Using the same formula for the outer B gear and the C gear gives us $\frac{22*32}{7}$ = **100.571 rpm**.