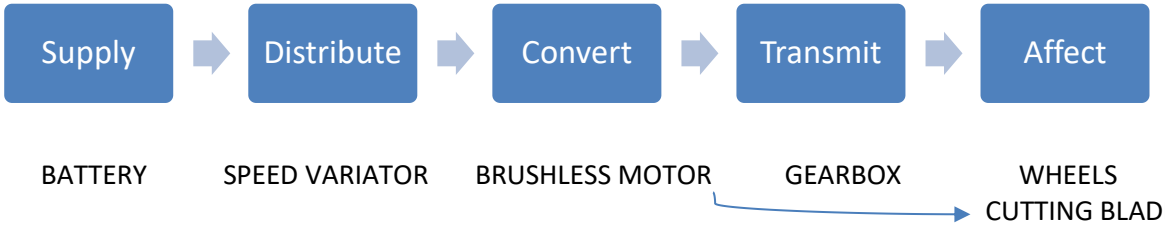
TEACHER

1. Complete the energy chain:



Technical information:

GreenWorks Pro 80V System offers a range of commercial grade tools for the professionals and those who just want more power. This 21-inch cordless self-propelled lawn mower features a durable steel deck, large 10-inch rear wheels, and Smart Cut load sensing technology. Self-propel for less user fatigue. It has a single lever height adjustment and 3-in-1 operation for mulching, bagging, and discharging. Designed for durability and heavy duty jobs, it features a brushless motor that delivers the power and performance of a 160cc gas engine. With an extra battery on hand, you can now rip through grass in the neighbourhood without the hassle of gas. Compatible batteries currently include a 2ah (model GBA80200) and 4ah (model GBA80400) battery and rapid charger (model GCH8040). The 2ah battery charges within 30 minutes so you can get back to work and finish that job. The 4ah battery charges within 1 hour.

2. What would be the equivalent of a combustion engine?

3. What are the different types of mowing?

4. How long does it take to charge the 4Ah battery?

5. Which type of power is supplied? DC or AC

6. Calculate the torque of the cutting blade. *The blade is directly connected to the motor shaft.*
Torque (T) = Power / omega (speed in m/s)= 720x60/2850x2π= 2.41mN

7. Determine the rotation speed of the driving wheels.
Speed rotation = 2850 x 1/45= 63.3 Rpm/min

8. Calculate the torque of the driving wheels.
Torque (T) = Power / omega (speed in m/s)= 720x60/63.3x2π= 110.37mN

9. What is the output power *(puissance utile)* of the electric motor?
Output power = Input Power x efficiency= 720 x 0.93 x 0.80= 535.68W

10. The battery supplies a current of 20 amps.
Calculate the input power *(puissance absorbée)* by the motor. Deduce the efficiency.
Input power= 80volts x 20amps = 1600W
Efficiency= output power/ input power = 535.68/1600= 0.3348

11. What is the speed (km/h) of the lawn mower?
Rotation / hour = 63.3 Rpm/min x 60= 3798 Rpm/h
Rear wheel = 10inches = 254mm: diameter = 0.254mx π = 0.797
Speed = 3798 x 0.797 = 3027 m/h = 3.027km/h

- Variable speed self-propel for easier operation
- Brushless motors are more reliable and deliver performance equivalent to a 160cc gas engine
- Smart Cut(TM) Load sensing technology
- 3-in-1 Mulch, rear bag, and side discharge
- 80V 2AH li-ion battery and rapid charger Not Included, compatible battery and charger models GBA80200, GBA80400 and GCH8040

00:00
real pro power introducing the Green
00:07
Works pro quart is 21 inch mower powered
00:10
by the 80 volt lithium Max battery
00:12
system this is true gas performance
00:15
without the cost hassle and maintenance
00:17
of gas tools designed with pros in mind
00:20
it features a 21 inch steel deck instant
00:23
OneTouch start and single handle seven
00:25
level height adjustment so you can get
00:27
the job done all with zero emissions and
00:30
sixteen times less noise than typical
00:33
gas mowers every Green Works pro tool is
00:36
engineered with cutting edge digit pro
00:37
brushless motors to deliver maximum
00:40
performance that you can feel and our
00:42
innovative smart cut technology extends
00:45
runtime and maximizes torque on demand
00:47
when you need it most
00:49
unmatched versatility means you can
00:51
launch bag or side discharge and when
00:54
you're ready to switch tools you can
00:56
move the battery to our complete line of
00:58
80 volt power tools in just seconds for
01:02
you it's not just a tool it's your life
01:05
this is Green Works Pro endless power
01:09
zero emissions