

# Mathletics Junior Level

# J1. Consumer Math

You are making a purchase and will be paying for shipping charges for your package to be mailed. Any purchase \$20 and below will be charged \$2.00. Any purchase above \$20 will be charged \$2.00 plus 10% of the purchase price. Your purchase price is \$35.00. How much is your total including shipping?

## J2. Work Performed

If the plane take off force was 1650 N and it has travelled a distance of 320 m then find out the work done by the airplane during take off in kilo Joules.

Work = Force x Distance

1 Joule = 1 Newton Metre



## J3. Frequency

A radio station transmits its program at 35,200,000 cycles per second. Give its frequency in MHz.

**1 (cycle/sec) = 1 Hertz (Hz)**

**1 MHz = 1,000,000 Hz**



# J17. Mechanical Efficiency

You are designing a vehicle that uses a 65 horsepower (hp) transverse mounted engine. On testing the complete car, you measure only 50 hp at the front wheels. **What is the mechanical efficiency of the vehicle ?**



"It's a hybrid."