Energy efficiency, velocity & force calculations **Name:_____**

Assignment #6 –term 2 c2 Due Wed, December 6th, 2017

$F_g = mg$ $v = \frac{d}{t}$ % energy efficiency = $\frac{\text{useful energy}}{\text{consumed energy}} \times 100$

Round to whole numbers!

/18 =

Speed

1. How many **hours** does it take to travel 467 500 m if you are traveling at a speed of 85 km/h? (2)

2. **How far** does a baseball travel (in meters) if its speed is 22 m/s for 7 seconds before it hits the ground? (2)

3. Find the **% efficiency** of the heating element of your stove if it runs on 2000 W for 3 minutes to bring your pot of water to a boil. The thermal energy of the water in the pot is 308 710 J. (2)

Space Monkey

JoJo the **42.6 kg** space monkey is getting ready for a trip to the moon and to another planet.
Please answer the following questions about her trip.

4. JoJo gets on a bus to travel to the launch pad. If the bus takes 18 minutes to get to the launch pad and travels 19.2 km, what was the average velocity of the bus? Report your answer in both m/s and km/h. (2)

5. JoJo climbs into the rocket and then travels to the moon where the gravitational field intensity is 1.62 N/kg. What is JoJo's weight on the moon? (2)

6. The rocket then leaves the moon and travels 8 weeks 4 days and 8 hours at a speed of 53 722 km/h a planet in our solar system. How far away is this planet? (3)

7. If the force of gravity on JoJo is 158.1 N on this new planet, what is the intensity of the gravitational field? Which planet did she land on? *Once you know the planet you can check the distance in #6 on Google!* (3)

8. On earth one of the astronauts weighs 705.6 N. How much does he weigh on the moon? (2)