

# Physics 1114 - General Physics I

## Quiz #5 - 2012.08.31

### Solutions

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1. Convert  $10 \text{ kg/cm}^2$  to  $\text{g/m}^2$ .

$$10 \frac{\text{kg}}{\text{cm}^2} \cdot \frac{1000 \text{ g}}{1 \text{ kg}} \cdot \left( \frac{100 \text{ cm}}{1 \text{ m}} \right)^2 = 1 \times 10^8 \frac{\text{g}}{\text{m}^2}$$

2. What is the difference between velocity and relative velocity. Give an example to justify your explanation.

Velocity of an object is usually measured with respect to a stationary observer. But two observers who measure the same object moving will get different results if they are moving with respect to each other.

As an example, if two people are driving their cars towards each other, the rate at which the opposite car is approaching their own depends on both velocities. However, if there is an observer in line behind one of the cars, the velocity of each car will be exactly as is read off the speedometer of each vehicle.