Physics Problem Set 4.1 You can use 10m/s/s for the value of g

$\Delta x = v_o t + \frac{1}{2} at^2$

$V_f = v_o + at$ which can be written as $a = (v_f - v_o)/t$

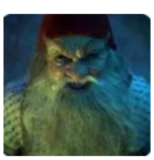
$V_{ave} = \frac{1}{2} (v_f + v_o)$

$V_f^2 = v_o^2 + 2a\Delta x$

1. A car staring from rest accelerate at a rate of 3m/s/s for 5 seconds.
   a. What is the final speed of the car?
   b. What was the average speed of the car?
   c. How far did the car travel during this time?

2. A car staring from rest accelerates at a constant rate, reaching a speed of 25 m/s in 10 seconds.
   a. What was the car's acceleration?
   b. What was the average speed of the car?
   c. How far did the car travel during this time?

3. An angry Barn Elf 🙍‍♀️ drops a 100-pound anvil from the roof of the barn onto the unsuspecting farmer located 45 meters below. The farmer 👩‍🌾 moves out of the way just in time.
   a. What is the acceleration of the anvil as it falls?
   b. Who long does the anvil take to reach the ground?
   c. What is the velocity of the anvil just before it hits the ground?



4. A person person throws a ball 🏀 straight up and catches it 2 seconds later.
   a. What is the acceleration of the ball while it is moving?
   b. How long does it take the ball to reach its highest position?
   c. What is the speed of the ball at its highest position?

d. What was the initial velocity of the ball?
e. What is the acceleration of the ball at its highest position?
f. How high does the ball reach?
g. What is the speed of the ball just before the person catches it?