1. An airplane starts from rest and accelerates at 10.8 m/s^2. What is its speed at the end of a 400 m–long runway?
   A) 37.0 m/s B) 4320 m/s C) 65.7 m/s D) 93.0 m/s E) 186 m/s

2. An object is thrown upwards with a speed of 14 m/s. How high above the projection point is it after 0.50 s?
   A) 7.0 m B) 8.2 m C) 2.9 m D) 0 m E) 5.8 m

3. A car is moving with a velocity $(3.0\ \text{m/s})\hat{x} + (1.0\ \text{m/s})\hat{y}$ and 3.0 seconds later its velocity is $(6.0\ \text{m/s})\hat{x} - (3.0\ \text{m/s})\hat{y}$. What is the direction of the average acceleration of the car?
   A) 60° from the x–axis
   B) 67° from the x–axis
   C) 53° from the x–axis
   D) –53° from the x–axis
   E) –67° from the x–axis

4. A plane has an airspeed of 142 m/s. A 16.0 m/s wind is blowing southward at the same time as the plane is flying. If the velocity of the plane relative to Earth is due east, what is the magnitude of that velocity?
   A) 16.0 m/s B) 16.2 m/s C) 158 m/s D) 141 m/s E) 48 m/s

5. A ball rolls over the edge of a table with a horizontal velocity v m/s. The height of the table is 1.6 m and the horizontal range of the ball from the base of the table is 20 m. What is the magnitude and direction of the ball's acceleration right before it touches the ground?
   A) 9.8 m/s^2 eastward
   B) 4.9 m/s^2 downward
   C) 4.9 m/s^2 eastward
   D) 9.8 m/s^2 downward
   E) 0 m/s^2 downward

6. A bullet is fired from ground level with a speed of 150 m/s at an angle 30.0° above the horizontal at a location where g = 10.0 m/s^2. What is the vertical component of its velocity after 4 seconds?
   A) 130 m/s B) 75.0 m/s C) 35 m/s D) 150 m/s E) 37.5 m/s

7. A boy kicks a football with a certain initial velocity at an angle 20° above the horizontal. In 2.0 seconds, the ball reaches at its highest point in its trajectory. What is the initial velocity of the ball?
   A) 20 m/s B) 29 m/s C) 9.8 m/s D) 57 m/s E) 4.9 m/s