ENERGY PROBLEMS for you, to do, shoo be do bee do...

by_____ (E&P only)

Let g = 9.80 m/s^2. Remember to round off answers appropriately.

1) A window washer on a scaffold 10.0 meters high kicks the bucket, so to speak, off the scaffold with a speed of 3.00 m/sec. How fast will the bucket be traveling when it hits the sidewalk below?

Ans:

2) A low and inside pitch on Opening Day hits the dirt behind home plate at 35 m/sec. If the ball was released from the pitcher's arm 2.5 meters above the level of the field, how fast did the pitcher throw the ball?

Ans:

3) You throw something at 5.0 m/sec, and it hits the ground at 8.0 m/sec. How far above ground level are you?

Ans:

4) A bird is flying with a speed of 18.0 m/s over water when it accidentally drops a 2.00 kg fish. If the altitude of the bird is 5.40 m and friction is disregarded, what is the speed of the fish when it hits the water?

Ans:

5) A 755 N diver drops from a board 10.0 m above the water's surface. Find the diver's speed 5.00 m above the water's surface. Then find the diver's speed just before striking the water.

Ans:

Ans:

6) If the diver in item 2 leaves the board with an initial upward speed of 2.00 m/s, find the diver's speed when striking the water.

Ans:

7) A pendulum bob is released from some initial height such that the speed of the bob at the bottom of the swing is 1.9 m/s. What is the initial height of the bob?

Ans:

8) How long does it take a 19 kW steam engine to do 6.8×10^7 J of work?

Ans:

9) A 1.50×10^3 kg car accelerates uniformly from rest to 10.0 m/s in 3.00 s. What is the change in kinetic energy of the car? What is the power delivered by the engine in this time interval?

Ans:

Ans: