DC Physics: Blizzard Bag #3 (Wright-Korchnak)

The following lesson is an introduction to Work and Energy.

Visit the following website for a video on the topic of Work and Energy:

https://www.khanacademy.org/science/physics/work-and-energy/work-and-energy-tutorial/v/introduction-to-work-and-energy

Complete the following questions:

1. Calculate the work done by a 47 N force pushing a pencil 0.26 m.

2. Calculate the work done by a 47 N force pushing a 0.025 kg pencil 0.25 m against a force of 23 N.

3. Calculate the work done by a 2.4 N force pushing a 400. g sandwich across a table 0.75 m wide.

4. How far can a mother push a 20.0 kg baby carriage, using a force of 62.0 N at an angle of 30.0º to the horizontal, if she can do 2920 J of work?

5. How much work is it to lift a 20. kg sack of potatoes vertically 6.5 m?

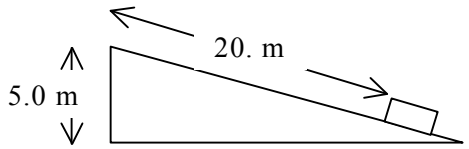
6. If a small motor does 520. J of work to move a toy car 260. m, what force does it exert?

7. A girl pushes her little brother on his sled with a force of 300. N for 750. m. How much work is this if the force of friction acting on the sled is (a) 200. N, (b) 300. N?

8. A 75.0 kg man pushes on a 5.0×10^5 ton wall for 250 s but it does not move. How much work does he do on the wall? (2000 lb = 1 ton; 0.454 kg = 1 lb)

9. A boy on a bicycle drags a wagon full of newspapers at 0.800 m/s for 30.0 min using a force of 40.0 N. How much work has the boy done?

Consider a 10 kg mass sitting on the ramp shown to the right. Use the following diagram for questions 10 and 11.



10. If it takes 25 N to slide the box up the ramp, how much work will it take to slide the box up?