Physics

مؤسسة الإمارات للتعليم المدرسي
EMIRATES SCHOOLS ESTABLISHMENT

9 advance worksheet 1
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NAME: **Class:**

1. Which of the following is a correct unit of energy? 10 marks

   a) kg m/s2

   b) kg m2/s

   c) kg m2/s2

   d) kg2 m/s2

   e) kg2 m2/s2

2. A 1500-kg car accelerates from 0 to 25 m/s in 7.0 s. What is the average power delivered by the engine (1 hp = 746 W)?

   a) 60 hp

   b) 70 hp

   c) 80 hp

   d) 90 hp

   e) 180 hp

3. Which of the following is a correct unit of power?

   a) kg m/s2

   b) N

   c) J

   d) m/s2

   e) W

4. How much work is done when a 75.0-kg person climbs a flight of stairs 10.0 m high at constant speed?

   a) 7.36·105 J

   b) 750 J

   c) 75 J

   d) 7500 J

   e) 7360 J

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5. If negative work is being done by an object, which one of the following statements is true?

   a) An object is moving in the negative x-direction.

   b) An object has negative kinetic energy.

   c) Energy is being transferred from an object.

   d) Energy is being transferred to an object.

You lift a 4.5 kg box from the floor and place it on a shelf that is 1.5 m above the ground. How much energy did you use in lifting the box?

A. 9.0 J **C.** 11 J

B. 49 J **D.** 66 J

A bicyclist increases her speed from 4.0 m/s to 6.0 m/s. The combined mass of the bicyclist and the bicycle is 55 kg. How much work did the bicyclist do in increasing her speed?

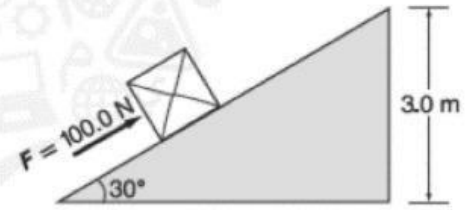
A. 11 J **C.** 55 J

B. 28 J **D.** 550 J

The box in the diagram is being pushed up the ramp with a force of 100.0 N. What is the work done on the box?
($\sin 30° = 0.50$, $\cos 30° = 0.87$, $\tan 30° = 0.58$)

A. 150 J **C.** 450 J

B. 260 J **D.** 600 J



A soccer marble of mass m slides along the ice at a speed of v_1. It strikes a wall and bounces back in the opposite direction. The energy of the marble after striking the wall is half its initial energy. Assuming friction is negligible, which expression gives the marble's new speed as a function of its initial speed?

A. $\frac{1}{2}v_1$ **C.** $\frac{\sqrt{2}}{2}(v_1)$

B. $\sqrt{2}(v_1)$ **D.** $2v_1$

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