

Ch6MidYrReview

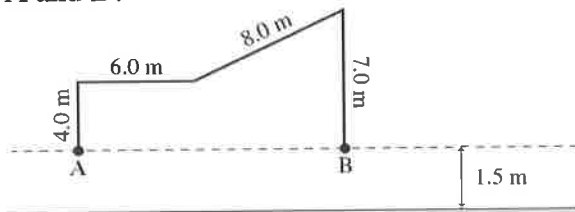
6.1 Conceptual Questions

- _____ 1) Person X pushes twice as hard against a stationary brick wall as person Y. Which one of the following statements is correct?
- A) Both do positive work, but person X does four times the work of person Y.
 - B) Both do positive work, but person X does twice the work of person Y.
 - C) Both do the same amount of positive work.
 - D) Both do zero work.
 - E) Both do positive work, but person X does one-half the work of person Y.
- _____ 2) Two men, Joel and Jerry, push against a car that has stalled, trying unsuccessfully to get it moving. Jerry stops after 10 min, while Joel is able to push for 5.0 min longer. Compare the work they do on the car.
- A) Joel does 75% more work than Jerry.
 - B) Joel does 50% more work than Jerry.
 - C) Jerry does 50% more work than Joel.
 - D) Joel does 25% more work than Jerry.
 - E) Neither of them does any work.
- _____ 3) If the force on an object is in the negative direction, the work it does on the object must be
- A) negative.
 - B) positive.
 - C) The work could be either positive or negative, depending on the direction the object moves.
- _____ 4) A 35-N bucket of water is lifted vertically 3.0 m and then returned to its original position. How much work did gravity do on the bucket during this process?
- A) 180 J
 - B) 90 J
 - C) 45 J
 - D) 0 J
 - E) 900 J
- _____ 5) You throw a baseball straight up. Compare the sign of the work done by gravity while the ball goes up with the sign of the work done by gravity while it goes down.
- A) The work is positive on the way up and positive on the way down.
 - B) The work is positive on the way up and negative on the way down.
 - C) The work is negative on the way up and positive on the way down.
 - D) The work is negative on the way up and on the way down because gravity is always downward.
- _____ 6) Which one has larger kinetic energy: a 500-kg object moving at 40 m/s or a 1000-kg object moving at 20 m/s?
- A) The 500-kg object
 - B) The 1000-kg object
 - C) Both have the same kinetic energy.

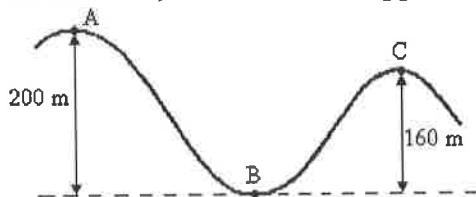
- _____ 7) You slam on the brakes of your car in a panic, and skid a certain distance on a straight level road. If you had been traveling twice as fast, what distance would the car have skidded, under the same conditions?
- A) It would have skidded 4 times farther.
 - B) It would have skidded twice as far.
 - C) It would have skidded 1.4 times farther.
 - D) It would have skidded one half as far.
 - E) It is impossible to tell from the information given.
- _____ 8) A stone is held at a height h above the ground. A second stone with four times the mass of the first one is held at the same height. The gravitational potential energy of the second stone compared to that of the first stone is
- A) one-fourth as much.
 - B) one-half as much.
 - C) twice as much.
 - D) four times as much.
 - E) the same.
- _____ 9) You and your friend, who weighs the same as you, want to go to the top of the Eiffel Tower. Your friend takes the elevator straight up. You decide to walk up the spiral stairway, taking longer to do so. Compare the gravitational potential energy of you and your friend, after you both reach the top.
- A) It is impossible to tell, since the times you both took are unknown.
 - B) It is impossible to tell, since the distances you both traveled are unknown.
 - C) Your friend's gravitational potential energy is greater than yours, because he got to the top faster.
 - D) Both of you have the same amount of gravitational potential energy at the top.
 - E) Your gravitational potential energy is greater than that of your friend, because you traveled a greater distance in getting to the top.
- _____ 10) A heavy rock and a light rock are dropped from the same height and experience no significant air resistance as they fall. Which of the following statements about these rocks are correct? (There could be more than one correct choice.)
- A) Both rocks have the same kinetic energy when they reach the ground.
 - B) Both rocks have the same speed when they reach the ground.
 - C) The heavier rock reaches the ground before the lighter rock.
 - D) Just as they were released, both rocks had the same amount of gravitational potential energy.
 - E) When they reach the ground, the heavier rock has more kinetic energy than the lighter rock.

6.2 Problems

- 11) A person carries a 25.0-N rock through the path shown in the figure, starting at point A and ending at point B. The total time from A to B is 1.50 min. How much work did gravity do on the rock between A and B?



- A) 625 J
 B) 20.0 J
 C) 275 J
 D) 75 J
 E) 0 J
- 12) How much kinetic energy does a 0.30-kg stone have if it is thrown at 44 m/s?
 A) 290 J
 B) 580 J
 C) 440 J
 D) 510 J
- 13) A bead is moving with a speed of 20 m/s at position A on the track shown in the figure. This track is friction-free, and there is no appreciable air resistance. What is the speed of the bead at point C?



- A) 0 m/s
 B) 34 m/s
 C) 69 m/s
 D) 20 m/s
 E) We cannot solve this problem without knowing the mass of the bead.

Ch6MidYrReview
Answer Section

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|---------------|--------|--------------|
| 1) ANS: D | PTS: 1 | REF: Var: 1 |
| 2) ANS: E | PTS: 1 | REF: Var: 1 |
| 3) ANS: C | PTS: 1 | REF: Var: 1 |
| 4) ANS: D | PTS: 1 | REF: Var: 1 |
| 5) ANS: C | PTS: 1 | REF: Var: 1 |
| 6) ANS: A | PTS: 1 | REF: Var: 1 |
| 7) ANS: A | PTS: 1 | REF: Var: 1 |
| 8) ANS: D | PTS: 1 | REF: Var: 1 |
| 9) ANS: D | PTS: 1 | REF: Var: 1 |
| 10) ANS: B, E | PTS: 1 | REF: Var: 1 |
| 11) ANS: E | PTS: 1 | REF: Var: 1 |
| 12) ANS: A | PTS: 1 | REF: Var: 19 |
| 13) ANS: B | PTS: 1 | REF: Var: 1 |