Energy, Work and Power Quiz - Test Review

(!) This is a preview of the published version of the quiz

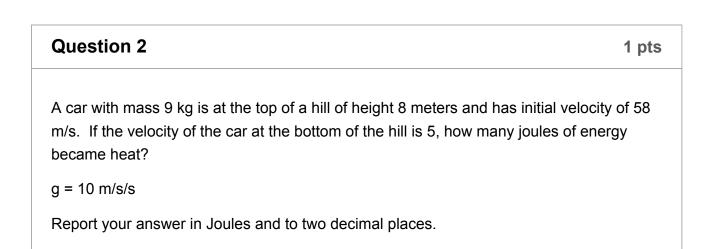
Started: Jan 24 at 8:45am

Quiz Instructions

g = 10 m/s/s

*The first four quiz questions reset after each attempt. The numbers will change, so complete all the questions before submitting.

Question 1	1 pts
A car with mass 8.4 kg is at the top of a hill of height 1.5 meters and has 0.7 m/s. If there is no friction, what is the velocity of the car at the botto	•
g = 10 m/s/s	
Report your answer in m/s and to two decimal places.	



Question 3	1 pts
A car with mass 2 kg is at the bottom of a hill of height 2 meters and has initial velocity of the car at the top of the hill?	ocity of
g = 10 m/s/s Report your answer in m/s and to two decimal places.	

Question 4	1 pts
A car with mass 1 kg is at the bottom of a hill of height 4 meters and has initial velo 96 m/s. If there IS friction and the velocity of the car as it reaches the top of the hill m/s, how much energy was lost as heat at the time it reaches the hill top?	
g = 10 m/s/s	
Report your answer in Joules and to two decimal places.	

Question 5	1 pts
Power is divided by time.	
○ work	
velocity	

 none of these 	
○ force	
displacement	

Question 6	1 pts
A student is able to lift a 50 kg mass above to a height of 1 meter in 10 seconds. much power was generated in Watts?	How

	Question	7
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1 pts

A machine runs for 90 seconds with a steady power output of 20 watts. How many joules of work does the machine produce in those 90 seconds?

Question 8	1 pts
A machine runs with a steady power output of 30 Watts producing 150 Joules of Mow long in seconds did the machine run?	work.



work		
displacement		
force		
) time		
onone of these		
acceleration		
power		

Question 10	1 pts
The slope of a work v time graph is	
force	
one of these	
o power	
o displacement	
○ joules	
velocity	

Question 11	1 pts
1 Watt is equal to 1 per second.	
Meter	

Radian			
 Joule 			
Degree			
Newton			

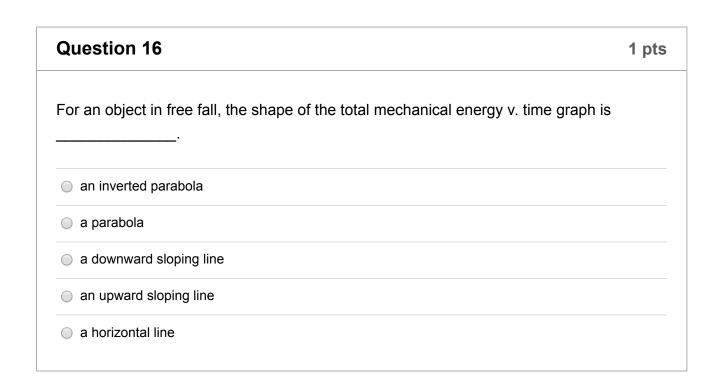
Question 12	1 pts
A book moves across a table at a constant velocity of 15 m/s with a constant push of 6 Newtons. What is the power in Watts generated by the pushing force? Hint: Power = Force*Velocity	force

Question 13	1 pts
A book moves across a table at a constant velocity of 15 m/s with a constant pust of 6 Newtons. What is the power in Watts generated by the friction force?	h force
Hint: Power = Force*Velocity	

Question 14	1 pts
For an object in free fall, the shape of the kinetic energy v. time graph is	
an upward sloping line	
an inverted parabola	

🔘 a hori	izontal line		
a dow	nward sloping line		
a para	abola		

Question 15	1 pts
For an object in free fall, the shape of the gravitational potential energy v. time gra	ph is
 a downward sloping line 	
 a horizontal line 	
 an inverted parabola 	
 an upward sloping line 	
 a parabola 	



The shape of the 'elastic energy' v. 'change in length' graph for a spring that is being elongated is a
a downward sloping line
a parabola
 an inverted parabola
an upward sloping line

Question 18	1 pts
For an ideal pendulum, the shape of the total mechanical energy v. time graph is a	
a parabola	
a downward sloping line	
 an upward sloping line 	
 an inverted parabola 	
 a horizontal line 	

Question 19	1 pts
A crate is pushed at a constant speed across the floor. What is the shape of its 'to mechanical energy' v. time graph?	tal
 an inverted parabola 	
a horizontal line	
a parabola	
 an upward sloping line 	

a downward sloping line

Question 20	1 pts
What is the graph shape for kinetic energy as a function of velocity?	
an upward sloping line	
a downward sloping line	
 an inverted parabola 	
 a horizontal line 	
a parabola	

Question 21	1 pts
If a spring is initially stretched to a displacement of X m and is later stretched to 3 what factor does the elastic energy in the spring change?	3X m, by
O 3	
○ 1/9	
○ 1/3	
○ 9	
○ 1/2	
○ 2	

Question 22	1 pts

If the velocity of a moving car quadruples, by what factor does its kinetic energy change?
◎ 2
0 1/3
0 1/2
0 1/16
03
○ 4
0 1/4
16

Question 23	1 pts
For an ideal pendulum, the kinetic energy is the least when	
 it is at the bottom of its swing 	
 it is at the top of its swing 	

Question 24	1 pts
What is weight in Newtons of a hanging mass that stretches a spring with k=30 distance .4 m?	∣0 N/m a

Question 25

1 pts

What is the gravitation potential energy in Joules of a mass with weight 30 N if it is lifted 5 meters off the ground vertically?

Question 26	1 pts
What is the spring constant of a spring that is compressed .5 m with 12 Joules of energy?	

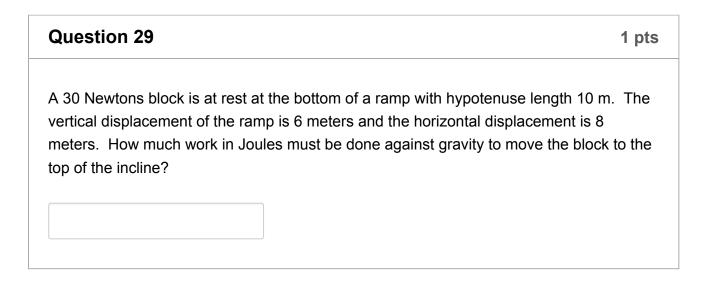
Question 27	1 pts
By what factor is power output affected if the time to complete the same work is 1/3?	cut by
0 1/9	
0 16	
• 4	
O 3	
○ 1/4	
0 1/3	
1/16	
9	

Question 28

1 pts

A student pushes a cart 4 meters with a force of 40 N toward the east and then pushes the same cart 5 meters with 60 N toward the north. What is the total amount of work in Joules done by the student on the cart?

Hint: Work is a scalar quantity.



Question 30	1 pts
A 30 Newtons block is at rest at the bottom of a ramp with hypotenuse length 10 m. vertical displacement of the ramp is 6 meters and the horizontal displacement is 8 meters. What is the average force in Newtons required to push the block up the hypotenuse of the ramp to the very top? Assume no friction.	The

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