

QUESTION 10
 A 1000-kg car is moving at 100 km/h. What is its kinetic energy?
 A. 1000 J
 B. 10000 J
 C. 100000 J
 D. 1000000 J
 E. 10000000 J

ANSWER: C
 Kinetic energy is given by $\frac{1}{2}mv^2$. The car's mass is 1000 kg and its velocity is 100 km/h, which is 27.78 m/s. The kinetic energy is $\frac{1}{2}(1000 \text{ kg})(27.78 \text{ m/s})^2 = 100000 \text{ J}$.

QUESTION 11
 A 1000-kg car is moving at 100 km/h. What is its momentum?
 A. 1000 kg·m/s
 B. 10000 kg·m/s
 C. 100000 kg·m/s
 D. 1000000 kg·m/s
 E. 10000000 kg·m/s

ANSWER: C
 Momentum is given by mv . The car's mass is 1000 kg and its velocity is 100 km/h, which is 27.78 m/s. The momentum is $(1000 \text{ kg})(27.78 \text{ m/s}) = 100000 \text{ kg·m/s}$.

QUESTION 12
 A 1000-kg car is moving at 100 km/h. What is its potential energy?
 A. 1000 J
 B. 10000 J
 C. 100000 J
 D. 1000000 J
 E. 10000000 J

ANSWER: E
 Potential energy is given by mgh . The car's mass is 1000 kg and its height is 100 m. The potential energy is $(1000 \text{ kg})(9.8 \text{ m/s}^2)(100 \text{ m}) = 1000000 \text{ J}$.

QUESTION 13
 A 1000-kg car is moving at 100 km/h. What is its total energy?
 A. 1000 J
 B. 10000 J
 C. 100000 J
 D. 1000000 J
 E. 10000000 J

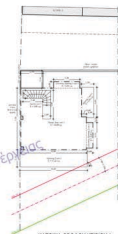
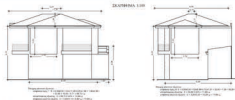
ANSWER: E
 Total energy is the sum of kinetic and potential energy. The car's kinetic energy is 100000 J and its potential energy is 1000000 J. The total energy is $100000 \text{ J} + 1000000 \text{ J} = 1000000 \text{ J}$.

QUESTION 14
 A 1000-kg car is moving at 100 km/h. What is its average velocity?
 A. 1000 m/s
 B. 10000 m/s
 C. 100000 m/s
 D. 1000000 m/s
 E. 10000000 m/s

ANSWER: C
 Average velocity is given by $\frac{\Delta x}{\Delta t}$. The car's displacement is 100 km and its time is 1 hour. The average velocity is $\frac{100 \text{ km}}{1 \text{ h}} = 100000 \text{ m/s}$.

QUESTION 15
 A 1000-kg car is moving at 100 km/h. What is its average speed?
 A. 1000 m/s
 B. 10000 m/s
 C. 100000 m/s
 D. 1000000 m/s
 E. 10000000 m/s

ANSWER: C
 Average speed is given by $\frac{\Delta x}{\Delta t}$. The car's displacement is 100 km and its time is 1 hour. The average speed is $\frac{100 \text{ km}}{1 \text{ h}} = 100000 \text{ m/s}$.



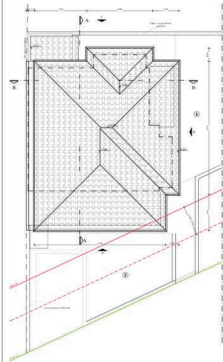
CONCLUSIONS The proposed method is a simple and effective way to solve the problem of the optimal control of the motion of a mechanical system. The method is based on the use of the principle of least action and the method of the calculus of variations. The method is applicable to a wide range of problems in the theory of optimal control. The method is simple and effective and can be used for the solution of a wide range of problems in the theory of optimal control.

Example 1 *Consider the function $f(x) = x^2 + 2x + 1$.*
Find the derivative of $f(x)$ using the power rule.
Solution: $f'(x) = 2x + 2$

[illegible]

④ 乘积型滤波: $H_c(z) = H_1(z)H_2(z)$ 或 $H_c(z) = H_1(z)H_2(z)$
 乘积型滤波优点: ① 可实现任意阶数; ② 可实现任意滤波器特性
 乘积型滤波缺点: ① 实现复杂; ② 实现成本高; ③ 实现难度大

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ΕΚΔΑΤΗΣ, ΛΟΓΟΓΡΑΦΟΣ

8. 2000年10月1日起，凡在我国境内销售货物的单位和个人，均应按销售额的17%缴纳增值税。

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