

Domanda **1**

Risposta non ancora data

Punteggio max.: 1

Let X be a continuous random variable with probability density function

$$f(x) = \begin{cases} 0 & x < 0 \\ 5e^{-5x} & x \geq 0 \end{cases}$$

then, $\mathbb{E}[X]$ is equal to:

Scegli un'alternativa:

- 0.5
- 3
- 0.5
- 5

Domanda **2**

Risposta non ancora data

Punteggio max.: 1

Consider the real random variables X and Y , and the linear regression model $Y = \alpha + \beta X + \varepsilon$ where ε is a zero mean random variable, uncorrelated with the predictor.

If

$$\mathbb{E}[X] = 1.5, \quad \mathbb{E}[Y] = -2.1,$$

$$\text{Var}(X) = 1.44, \quad \text{Var}(Y) = 6.25,$$

$$\rho = 0.3 \text{ (where } \rho \text{ is the linear correlation coefficient)}$$

then, the value of the coefficient β is equal to:

Scegli un'alternativa:

- 0.625
- 0.625
- 0.3
- 0.1302

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Risposta non ancora data

Punteggio max.: 1

Consider a market where the supply is $q = 10p$ and, initially, the demand is $q = 20 - 10p$. Assume the demand becomes $q = 30 - 10p$. The new equilibrium quantity:

- a. increases by 5 units
- b. reduces by 5 units
- c. increases by 6 units
- d. reduces by 8 units

Domanda **22**

Risposta non ancora data

Punteggio max.: 1

If $Q(p) = 100 - 10p$ and $p = 4$, which is the value of price elasticity?

- a. 0,72
- b. -1.15
- c. 0,18
- d. -0,66

Domanda **23**

Risposta non ancora data

Punteggio max.: 1

If the demand is rigid, price increases:

- a. reduce consumers' demand
- b. increase producers' revenues
- c. reduce producers' revenues
- d. the revenue of producers is unchanged

Domanda **24**

Risposta non ancora data

Punteggio max.: 1

Market demand is considered rigid when the elasticity is:

- a. between $-\infty$ and $+\infty$
- b. between 0 and -1
- c. larger than 0
- d. positive

Domanda **25**

Risposta non ancora data

Punteggio max.: 1

Market demand is $q = 190 - 5p$, supply is $q = 10 + 25p$. Market equilibrium price and quantity is:

- a. $q^* = 160, p^* = 6$
- b. $q^* = 150, p^* = 6$
- c. $q^* = 6, p^* = 160$
- d. $q^* = 100, p^* = 5$

Domanda **26**

Risposta non ancora data

Punteggio max.: 1

The Marginal Rate of Substitution is equal to:

- a. the slope of the demand curve
- b. the exchange value of one good in terms of another one, on the indifference curve
- c. the overall utility level of an indifference curve
- d. none of the other alternatives

Domanda **27**

Risposta non ancora data

Punteggio max.: 1

Information that a business keeps in its accounting records includes its

- a. goods and services
- b. revenues and expenses
- c. trends and forecasts
- d. market share and profit

Domanda **28**

Risposta non ancora data

Punteggio max.: 1

Operations activities are most closely related to a business's

- a. Taxes
- b. Name
- c. Product
- d. Location

Domanda **29**

Risposta non ancora data

Punteggio max.: 1

Select the term that describes a cash distribution to a Corporation's Stockholders:

- a. dividend
- b. paid out capital
- c. cash management
- d. shares

Domanda **30**

Risposta non ancora data

Punteggio max.: 1

The marketing logic by which the business unit hopes to achieve its marketing objective is called:

- a. Business strategy
- b. Marketing strategy
- c. Production & distribution strategy
- d. Business plan

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Domanda **11**

Risposta non ancora data

Punteggio max.: 1

Which liabilities are excluded from a bail-in?

- a. Bank bonds.
- b. Bank shares.
- c. Government bonds.
- d. Deposits above €100.000.

Domanda **12**

Risposta non ancora data

Punteggio max.: 1

The amount of contribution invested in a Defined Contribution (DC) Pension Fund is...

- a. Always safe from investment risk.
- b. Always exposed to investment risk.
- c. Protected from investment risk only if the sponsor offers a guarantee of minimum return.
- d. Protected from investment risk with lifestyle investment strategy.

Domanda **13**

Risposta non ancora data

Punteggio max.: 1

Mutual funds return on investment depends on...

- a. Annual coupons.
- b. The level of the guaranteed return.
- c. The maturity of the fund.
- d. The final value of the investment and its initial cost.

Domanda **14**

Risposta non ancora data

Punteggio max.: 1

...expresses the measurable change in the value of a security in response to a change in interest rates.

- a. Rating.
- b. Spread.
- c. Modified Duration.
- d. Standard Deviation.

Domanda **15**

Risposta non ancora data

Punteggio max.: 1

The level of the interest rate charged by the bank for a loan depends on...

- a. The nationality of the borrower.
- b. The borrower's level of education.
- c. The borrower's annual income.
- d. The balance of the borrower's current account.

Domanda **16**

Risposta non ancora data

Punteggio max.: 1

Which of the following financial instrument exposes investors to leverage effect risk?

- a. Mortgage loan.
- b. Consumer credit.
- c. Casualty insurance.
- d. Forward contract.

Domanda **17**

Risposta non ancora data

Punteggio max.: 1

Last year, Peter bought a 2% yield to maturity fixed-rate long-term bond. Yesterday, the ECB has increased the key rate by 25 b.p.

If John sells the bond tomorrow, he will obtain...

- a. a return on investment lower than the 2% yield to maturity.
- b. exactly a 2% return on investment.
- c. a return on investment greater than the 2% yield to maturity.
- d. a 0% return on investment: he only saves the principal amount.

Domanda **18**

Risposta non ancora data

Punteggio max.: 1

Using the compound interest rates which is the monthly rate equivalent to the 4% yearly rate?

- a. 0,3274%
- b. 0,3334%
- c. 0,2782%
- d. 0,4%

Domanda **19**

Risposta non ancora data

Punteggio max.: 1

Consider a fixed coupon bond with maturity 10 months, semi annual coupons, yearly coupon rate 2%. The (yearly) market spot interest rates are equal to 2,79% for maturities up to 6 months and 3,79% for longer maturities. Get the bond clean market price. Nominal value is 100.

- a. 98,8985
- b. 98,9079
- c. 100
- d. 98,8008

Domanda **20**

Risposta non ancora data

Punteggio max.: 1

A 2 years zero-coupon bond has a price of 96 (nominal value is 100). Which is the 2 years compound spot interest rate correspondent to that price?

- a. 2,0621%
- b. 2,0834%
- c. 2%
- d. 4%

Domanda **3**

Risposta non ancora data

Punteggio max.: 1

The continuous real random variable X has probability density function:

$$f(x) = \begin{cases} kx^3(1-x) & 0 < x < 1 \\ 0 & \text{otherwise} \end{cases}$$

Then, the value of the the normalization constant k is:

Scegli un'alternativa:

- 20
- 2
- 1
- 1/20

Domanda **4**

Risposta non ancora data

Punteggio max.: 1

Let X be a continuous random variable with cumulative distribution function (cdf):

$$F(x) = \begin{cases} 0 & x < 0 \\ \sqrt{x} & 0 \leq x < 1 \\ 1 & x \geq 1 \end{cases}$$

then, the quantile of order 0.5 is equal to:

- a. 0.5
- b. 0.2
- c. 0.25
- d. 0.75

Domanda **5**

Risposta non ancora data

Punteggio max.: 1

In an estimation problem, what is the difference between a parameter and an estimator?

- a. A parameter is an unknown quantity referring to a population, while an estimator is a random variable that is a function of the sample.
- b. No difference.
- c. A parameter is an unknown variable referred to a population, an estimator is instead a known quantity calculated on the same sample.
- d. Both refer to a sample, but the first is unknown while the second one is known.

Domanda **6**

Risposta non ancora data

Punteggio max.: 1

The function $f(x, y) = 1 - x^3 + x^2 + 2y^2$

- a. Admits only one local minimum point at (0,0)
- b. Admits the two local minima (0,0) e (2/3,0)
- c. Does not admit extrema
- d. Admits the local minimum point (0,0) and the local maximum point (2/3,0)

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Domanda **7**

Risposta non ancora data

Punteggio max.: 1

The function $f(x) = -x^2 + 1$ defined on the interval [0,1]

- a. Admits a global minimum and a global maximum
- b. Does not admit maximum and minimum
- c. Has a maximum but not a minimum
- d. Has a minimum but not a maximum

Domanda **8**

Risposta non ancora data

Punteggio max.: 1

The matrix

$$\begin{bmatrix} 4 & 1 & 1 \\ 1 & -2 & 0 \\ 1 & 0 & 1 \end{bmatrix}$$

is

- a. indefinite
- b. negative definite
- c. positive definite
- d. negative semidefinite
- e. positive semidefinite

Domanda **9**

Risposta non ancora data

Punteggio max.: 1

The mixed partial derivative of the function $f(x, y) = e^{x^2y} + 2xy$

is

- a. $2xe^{x^2y}(2xy^2 + 1) + 2$
- b. $2xe^{x^2y}(x^2y + 1) + 2$
- c. $2xe^{x^2y}(2xy^2 + 1)$
- d. $2ye^{x^2}(2xy^2 + 1)$

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Risposta non ancora data

Punteggio max.: 1

The partial derivative with respect to x of the function $f(x, y) = \log(x^2y^3)$

is

- a. $\frac{2}{x}$
- b. $\frac{1}{x^2y^3}$
- c. $\frac{1}{2xy^3+3x^2y^2}$
- d. $\frac{1}{x^2} + \frac{1}{y^3}$