

## Question #1 of 43

Question ID: 472452

A synthetic European call option includes a short position in:

- ✓ **A) a risk-free bond.**
- ✗ **B) a European put option.**
- ✗ **C) the underlying asset.**

### Explanation

A synthetic European call option consists of a long position in the underlying asset, a long position in a European put option, and a short position in a risk-free bond (i.e., borrowing at the risk-free rate).

## Question #2 of 43

Question ID: 415866

A call option that is in the money:

- ✗ **A) has a value greater than its purchase price.**
- ✓ **B) has an exercise price less than the market price of the asset.**
- ✗ **C) has an exercise price greater than the market price of the asset.**

### Explanation

A call option is in the money when the exercise price is less than the market price of the asset.

## Question #3 of 43

Question ID: 472447

The price of a fixed-for-floating interest rate swap contract:

- ✗ **A) may vary over the life of the contract.**
- ✓ **B) is established at contract initiation.**
- ✗ **C) is directly related to changes in the floating rate.**

### Explanation

The price of a swap contract is set such that the contract has a value of zero at initiation. The *value* of a fixed-for-floating interest rate swap contract may vary over its life as the floating rate changes.

## Question #4 of 43

Question ID: 472442

Other things equal, the no-arbitrage forward price of an asset will be higher if the asset has:

- ✗ **A) dividend payments.**

- ☐ **B)** convenience yield.
- ☒ **C)** storage costs.

Explanation

Costs of holding an asset increase its no-arbitrage forward price. Benefits from holding the asset, such as dividends or convenience yield, decrease its no-arbitrage forward price.

---

**Question #5 of 43**

Question ID: 415927

A decrease in the riskless rate of interest, other things equal, will:

- ☒ **A) increase call option values and decrease put option values.**
- ☐ **B)** decrease call option values and decrease put option values.
- ☒ **C)** decrease call option values and increase put option values.

Explanation

A decrease in the risk-free rate of interest will decrease call option values and increase put option values.

---

**Question #6 of 43**

Question ID: 415920

Using put-call parity, it can be shown that a synthetic European put can be created by a portfolio that is:

- ☒ **A) short the stock, long the call, and long a pure discount bond that pays the exercise price at option expiration.**
- ☐ **B)** short the stock, long the call, and short a pure discount bond that pays the exercise price at option expiration.
- ☐ **C)** long the stock, short the call, and short a pure discount bond that pays the exercise price at option expiration.

Explanation

A short position in the stock combined with a long call and lending the present value of the exercise price will replicate the payoffs on a put at option expiration.

---

**Question #7 of 43**

Question ID: 472448

At expiration, the value of a call option is the greater of zero or the:

- ☐ **A) exercise price minus the exercise value.**
- ☐ **B)** underlying asset price minus the exercise value.
- ☒ **C)** underlying asset price minus the exercise price.

Explanation

The value of a call option at expiration is its exercise value, which is  $\text{Max}[0, S - X]$ .

---

### Question #8 of 43

Question ID: 415891

An option's intrinsic value is equal to the amount the option is:

- ☐ A) out of the money, and the time value is the market value minus the intrinsic value.
- ☒ B) in the money, and the time value is the market value minus the intrinsic value.
- ☐ C) in the money, and the time value is the intrinsic value minus the market value.

#### Explanation

Intrinsic value is the amount the option is in the money. In effect it is the value that would be realized if the option were at expiration. Prior to expiration, the option's market value will normally exceed its intrinsic value. The difference between market value and intrinsic value is called time value.

---

### Question #9 of 43

Question ID: 415862

Which of the following statements about moneyness is *most* accurate? When the stock price is:

- ☒ A) above the strike price, a put option is out-of-the-money.
- ☐ B) above the strike price, a put option is in-the-money.
- ☐ C) below the strike price, a call option is in-the-money.

#### Explanation

When the stock price is above the strike price, a put option is *out-of-the-money*.  
When the stock price is below the strike price, a call option is *out-of-the-money*.

---

### Question #10 of 43

Question ID: 415858

An investor would exercise a put option when the:

- ☒ A) price of the stock is below the strike price.
- ☐ B) price of the stock is above the strike price.
- ☐ C) price of the stock is equal to the strike price.

#### Explanation

A put option gives its owner the right to sell the underlying good at a specified price (strike price) for a specified time period. When the stock's price is less than the strike price a put option has value and is said to be *in-the-money*.

---

### Question #11 of 43

Question ID: 472437

The calculation of derivatives values is based on an assumption that:

- ☐ A) **arbitrage opportunities do not arise in real markets.**
- ☐ B) investors are risk neutral.
- ☒ C) arbitrage opportunities are exploited rapidly.

#### Explanation

Derivatives valuation is based on the assumption that any arbitrage opportunities in financial markets are exploited rapidly so that assets with identical cash flows are forced toward the same price. It does not assume arbitrage opportunities do not arise or that investors are risk neutral.

### Question #12 of 43

Question ID: 415919

Using put-call parity, it can be shown that a synthetic European call can be created by a portfolio that is:

- ☐ A) **long the stock, long the put, and long a pure discount bond that pays the exercise price at option expiration.**
- ☒ B) long the stock, long the put, and short a pure discount bond that pays the exercise price at option expiration.
- ☐ C) long the stock, short the put, and short a pure discount bond that pays the exercise price at option expiration.

#### Explanation

A stock and a put combined with borrowing the present value of the exercise price will replicate the payoffs on a call at option expiration.

### Question #13 of 43

Question ID: 415869

Consider a put option on Deter, Inc., with an exercise price of \$45. The current stock price of Deter is \$52. What is the intrinsic value of the put option, and is the put option at-the-money or out-of-the-money?

- |                                     | <u>Intrinsic Value</u> | <u>Moneyness</u>    |
|-------------------------------------|------------------------|---------------------|
| <input type="radio"/> A)            | \$7                    | <b>At-the-money</b> |
| <input checked="" type="radio"/> B) | \$0                    | Out-of-the-money    |
| <input type="radio"/> C)            | \$7                    | Out-of-the-money    |

#### Explanation

The option has an intrinsic value of \$0, because the stock price is above the exercise price. Put value is  $\text{MAX}(0, X - S)$ . Equivalently, the option is out-of-the-money.

### Question #14 of 43

Question ID: 415859

Basil, Inc., common stock has a market value of \$47.50. A put available on Basil stock has a strike price of \$55.00 and is selling for an option premium of \$10.00. The put is:

- ☐ A) out-of-the-money by \$2.50.
- ☐ B) in-the-money by \$10.00.
- ☒ C) in-the-money by \$7.50.

#### Explanation

The put allows a trader to sell Basil common stock for \$7.50 more than the current market value (\$55.00 – \$47.50). The trade is normally closed out with a cash settlement, but the trader could buy 100 shares for \$47.50 per share and immediately sell them to the option writer for \$55.00.

---

### Question #15 of 43

Question ID: 415916

Which of the following statements about long positions in put and call options is *most* accurate? Profits from a long call:

- ☒ A) are positively correlated with the stock price and the profits from a long put are negatively correlated with the stock price.
- ☐ B) are negatively correlated with the stock price and the profits from a long put are positively correlated with the stock price.
- ☐ C) and a long put are positively correlated with the stock price.

#### Explanation

For a call, the buyer's (or the long position's) potential gain is unlimited. The call option is in-the-money when the stock price (S) exceeds the strike price (X). Thus, the buyer's profits are positively correlated with the stock price. For a put, the buyer's (or the long position's) potential gain is equal to the strike price less the premium. A put option is in-the-money when  $X > S$ . Thus, a put buyer wants a high exercise price and a low stock price. Thus, the buyer's profits are negatively correlated with the stock price.

---

### Question #16 of 43

Question ID: 472455

Which of the following statements about American and European options is most accurate?

- ☒ A) Prior to expiration, an American option may have a higher value than an equivalent European option.
- ☐ B) There will always be some price difference between American and European options because of exchange-rate risk.
- ☐ C) European options allow for exercise on or before the option expiration date.

#### Explanation

American and European options both give the holder the right to exercise the option at expiration. An American option also gives the holder the right of early exercise, so American options will be worth more than European options when the right to early exercise is valuable, and they will have equal value when it is not.

---

### Question #17 of 43

Question ID: 472453

Which of the following instruments is a component of the put-call-forward parity relationship?

- ☐ A) **The spot price of the underlying asset.**
- ☐ B) The future value of the forward price of the underlying asset.
- ☒ C) The present value of the forward price of the underlying asset.

#### Explanation

The put-call-forward parity relationship is:  $F_0(T) / (1 + RFR)^T + p = c + X / (1 + RFR)^T$ , where  $F_0(T)$  is the forward price of the underlying asset.

---

### Question #18 of 43

Question ID: 456309

A put option is in the money when:

- ☐ A) **the stock price is higher than the exercise price of the option.**
- ☐ B) there is no put option with a lower exercise price in the expiration series.
- ☒ C) the stock price is lower than the exercise price of the option.

#### Explanation

The put option is in-the-money if the stock price is below the exercise price.

---

### Question #19 of 43

Question ID: 415867

James Anthony has a short position in a put option with a strike price of \$94. If the stock price is below \$94 at expiration, what will happen to Anthony's short position in the option?

- ☐ A) **The person who is long the put option will not exercise the put option.**
- ☒ B) He will have the option exercised against him at \$94 by the person who is long the put option.
- ☐ C) He will let the option expire.

#### Explanation

Anthony has *sold the right to sell the stock* at \$94. That is, he received a payment upfront for the payer to have the right but not the obligation to sell the stock at \$94. Because the option is in-the-money at expiration,  $\text{MAX}(0, X-S)$ , the holder will exercise his right to sell at \$94.

---

### Question #20 of 43

Question ID: 472449

Which of the following will increase the value of a put option?

- ☒ A) **An increase in volatility.**
- ☐ B) A decrease in the exercise price.
- ☐ C) A dividend on the underlying asset.

### Explanation

Increased volatility of the underlying asset increases both put values and call values.

---

### Question #21 of 43

Question ID: 472438

The value of a forward or futures contract is:

- ✓ **A) typically zero at initiation.**
- X B) equal to the spot price at expiration.
- X C) specified in the contract.

### Explanation

The value of a forward or futures contract is typically zero at initiation, and at expiration is the difference between the spot price and the contract price. The *price* of a forward or futures contract is defined as the price specified in the contract at which the two parties agree to trade the underlying asset on a future date.

---

### Question #22 of 43

Question ID: 472441

It is possible to profit from cash-and-carry arbitrage when there are no costs or benefits to holding the underlying asset and the forward contract price is:

- ✓ **A) less than the future value of the spot price.**
- X B) less than the present value of the spot price.
- X C) greater than the present value of the spot price.

### Explanation

An opportunity for cash-and-carry arbitrage exists if the forward price is not equal to the future value of the spot price, compounded at the risk-free rate over the period of the forward contract.

---

### Question #23 of 43

Question ID: 472439

During its life the value of a long position in a forward or futures contract:

- ✓ **A) is opposite to the value of the short position.**
- X B) can differ in size from the value of the short position.
- X C) is equal to the value of the short position.

### Explanation

The long and short positions in a forward or futures contract have opposite values. A gain for one is an equal-sized loss for the other.

---

### Question #24 of 43

Question ID: 415868

Bidco Corporation common stock has a market value of \$30.00. Which statement about put and call options available on Bidco common is *most* accurate?

- ✓ **A) A put with a strike price of \$35.00 is in-the-money.**
- X **B)** A put with a strike price of \$20.00 has intrinsic value.
- X **C)** A call with a strike price of \$25.00 is at-the-money.

#### Explanation

A put is in-the-money when its exercise price is higher than the market value of the underlying asset. A put with a \$35.00 strike price allows the trader to sell 100 shares of stock for \$35.00 per share, which is \$5.00 higher than the prevailing market value. This gives the put a value, hence, it is in-the-money. For a call to be in-the-money, its strike price would have to be lower than the market value of the underlying common stock, allowing the trader to purchase 100 shares at a price below the prevailing market value. At-the-money is when the strike price and asset market value are equal. A put with a strike price of \$20.00 does not have intrinsic value because it is below the \$30 price of the stock. It does have time value meaning it is worth something because there is the possibility the put will come into the money before it expires.

---

### Question #25 of 43

Question ID: 415912

For two European put options that differ only in their time to expiration, which of the following is *most* accurate? The longer-term option:

- ✓ **A) can be worth less than the shorter-term option.**
- X **B)** is worth more than the shorter-term option.
- X **C)** is worth at least as much as the shorter-term option.

#### Explanation

For European puts, it is possible that the longer term option can be less valuable than a shorter-term option.

---

### Question #26 of 43

Question ID: 472450

Dividends or interest paid by the asset underlying a call option:

- ✓ **A) decrease the value of the option.**
- X **B)** increase the value of the option.
- X **C)** have no effect on the value of the option.

#### Explanation

Dividends or interest paid by the underlying asset decrease the value of call options.

---

### Question #27 of 43

Question ID: 415929

Greater volatility in the price of the underlying asset will have what effect on the value of a call option and the value of a put



option?

<u>Value of a call option</u>	<u>Value of a put option</u>
-------------------------------	------------------------------

- |                      |                 |
|----------------------|-----------------|
| ✓ <b>A) Increase</b> | <b>Increase</b> |
| X <b>B) Decrease</b> | Increase        |
| X <b>C) Increase</b> | Decrease        |

#### Explanation

Greater volatility in the price of the underlying asset increases the values of both puts and calls because options are "one-sided." Since an option's value can fall no lower than zero (it expires out of the money), increased volatility increases an option's upside potential but does not increase its downside exposure.

---

### Question #28 of 43

Question ID: 415888

When calculating the payoff for a stock option, if the stock price is greater than the strike price at expiration:

- ✓ **A) the payoff to a call option is the difference between the stock price and the strike price.**
- X **B) the payoff to a put option is equal to the strike price.**
- X **C) a call option expires worthless.**

#### Explanation

If the stock price is greater than the strike price at expiration, the payoff to a call option on the stock equals the stock price minus the strike price, while a put option on the stock expires worthless.

---

### Question #29 of 43

Question ID: 472445

One of the principal characteristics of swaps is that swaps:

- ✓ **A) may be likened to a series of forward contracts.**
- X **B) are standardized derivative instruments.**
- X **C) are highly regulated over-the-counter agreements.**

#### Explanation

A swap agreement often requires that both parties agree to a series of transactions. Each transaction is similar to a forward contract, where a party is paying a fixed price to offset the risk associated with an unknown future value. Swaps are over-the-counter agreements but are not highly regulated. One of the benefits of swaps is that they can be customized to fit the needs of the counterparties. Thus, they are not standardized.

---

### Question #30 of 43

Question ID: 415926

An increase in the riskless rate of interest, other things equal, will:

- ✓ **A) increase call option values and decrease put option values.**

- X **B)** decrease call option values and increase put option values.
- X **C)** decrease call option values and decrease put option values.

Explanation

An increase in the risk-free rate of interest will increase call option values and decrease put option values.

---

**Question #31 of 43**

Question ID: 472444

If the price of a forward contract is greater than the price of an identical futures contract, the most likely explanation is that:

- X **A) the futures contract is more difficult to exit.**
- ✓ **B)** the futures contract requires daily settlement.
- X **C)** the forward contract is more liquid.

Explanation

The reason there may be a difference in price between a forward contract and an identical futures contract is that a futures position has daily settlement and so makes or requires cash flows during its life.

---

**Question #32 of 43**

Question ID: 472451

A synthetic European put option includes a short position in:

- ✓ **A) the underlying asset.**
- X **B)** a European call option.
- X **C)** a risk-free bond.

Explanation

A synthetic European put option consists of a long position in a European call option, a long position in a risk-free bond that pays the exercise price on the expiration date, and a short position in the underlying asset.

---

**Question #33 of 43**

Question ID: 415902

Compared to European put options on an asset with no cash flows, an American put option:

- X **A) will have a lower minimum value.**
- X **B)** will have the same minimum value.
- ✓ **C)** will have a higher minimum value.

Explanation

Early exercise of an in-the-money American put option on an asset with no cash flows can generate more,  $X - S$ , than the minimum value of the European option,  $X / (1 + R)^T - S$ . The possibility of profitable early exercise leads to a higher minimum value on the price of the American put option.

---

### Question #34 of 43

Question ID: 472440

As a forward contract approaches its expiration date, its value:

- ✓ **A) depends on the price of the underlying asset.**
- X **B) increases to the forward contract price.**
- X **C) approaches zero.**

#### Explanation

The value of a forward contract is zero at initiation, and during its life its value depends on changes in the spot price of the underlying asset. At expiration its value is based on the difference between the spot price of the underlying asset and the price specified in the forward contract.

### Question #35 of 43

Question ID: 415863

Given the following data regarding Printer, Inc.'s call options, which of the following statements is *least* accurate?

Stock Price	Expiration	Strike	Option Prem. (Last)
50	June	45	6
50	June	50	2
50	June	55	0.50

- ✓ **A) The June \$55.00 call is an in-the-money option.**
- X **B) The intrinsic value of the June \$45.00 call is \$5.00.**
- X **C) The June \$45.00 call is an in-the-money option.**

#### Explanation

The June \$55.00 call option is out-of-the money. It gives the purchaser the right to buy Printer, Inc. for \$55.00 when they would only have to pay \$50.00 in the market.

### Question #36 of 43

Question ID: 415895

The intrinsic value of an option is equal to:

- ✓ **A) zero or the amount that it is in the money.**
- X **B) its speculative value.**
- X **C) the amount that it is in or out of the money.**

#### Explanation

The intrinsic value of an option is equal to the amount that it is in the money or zero, if it is out of the money. Option value equals speculative (time) value only for out-of-the-money options.

### Question #37 of 43

Question ID: 415887

The payoff of a call option on a stock at expiration is equal to:

- ☐ A) the maximum of zero and the exercise price minus the stock price.
- ☒ B) the maximum of zero and the stock price minus the exercise price.
- ☐ C) the minimum of zero and the stock price minus the exercise price.

#### Explanation

The payoff on a call option on a stock is  $\text{Max}(0, S - X)$ .

---

### Question #38 of 43

Question ID: 415896

A call option's intrinsic value:

- ☒ A) increases as the stock price increases above the strike price, while a put option's intrinsic value increases as the stock price decreases below the strike price.
- ☐ B) decreases as the stock price increases above the strike price, while a put option's intrinsic value increases as the stock price decreases below the strike price.
- ☐ C) increases as the stock price increases above the strike price, while a put option's intrinsic value decreases as the stock price decreases below the strike price.

#### Explanation

For a call option, as the underlying stock price increases above the strike price, the option moves farther into the money, and the intrinsic value is increasing. For a put option, as the underlying stock price decreases below the strike price, the option moves farther into the money, and the intrinsic value is increasing.

---

### Question #39 of 43

Question ID: 415773

A forward rate agreement (FRA):

- ☒ A) can be used to hedge the interest rate exposure of a floating-rate loan.
- ☐ B) is risk-free when based on the Treasury bill rate.
- ☐ C) is settled by making a loan at the contract rate.

#### Explanation

An FRA settles in cash and carries both default risk and interest rate risk, even when based on an essentially risk-free rate. It can be used to hedge the risk/uncertainty about a future payment on a floating rate loan.

---

### Question #40 of 43

Question ID: 472443

The underlying instrument in a forward rate agreement is:

- ☒ A) an interest rate.

- X **B)** an asset.
- X **C)** a fixed-income security.

Explanation

A forward rate agreement is a forward contract with an interest rate, such as 30-day LIBOR, as its underlying instrument.

---

**Question #41 of 43**

Question ID: 415921

A fiduciary call is a portfolio that is made up of:

- ✓ **A) a call option and a bond that pays the exercise price of the call at option expiration.**
- X **B)** a call option and a share of stock.
- X **C)** a call that is synthetically created from other instruments.

Explanation

A fiduciary call combines a call option and a bond that pays the exercise price of the call at option expiration.

---

**Question #42 of 43**

Question ID: 472446

For a series of forward contracts to replicate a swap contract, the forward contracts must have:

- X **A) values at swap expiration that sum to zero.**
- ✓ **B) values at swap initiation that sum to zero.**
- X **C) values at swap initiation that are equal to zero.**

Explanation

When replicating a swap with a series of forward contracts, each forward contract is likely to be off-market (i.e., have a non-zero value at initiation), but they can replicate a swap with a value of zero at initiation if the values of the forward contracts sum to zero at swap initiation.

---

**Question #43 of 43**

Question ID: 472454

In a one-period binomial model for option pricing:

- X **A) the risk-neutral probability of a down-move is the reciprocal of the risk-neutral probability of an up-move.**
- X **B)** the size of an up-move and the size of a down-move must sum to one.
- ✓ **C) the exercise price of the option is one of the required inputs.**

Explanation

The exercise price of the option is needed to determine the option's values given an up-move and a down-move in the price of the underlying asset. The risk-neutral probabilities of an up-move and a down-move must sum to one and the size of a down-move is the reciprocal of the size of an up-move.

