Stock Options: Value

1. Suppose stock XYZ has a share price of $23 on March 25, 2005. A European call option on XYZ with a strike price of $25 and an expiration date of June 3, 2005 sells for $0.50.

   (a) Suppose the share price of XYZ is $35 on June 3, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? (If it is a net loss, express it as a negative number.)

   (b) Suppose the share price of XYZ is $27 on June 3, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? (If it is a net loss, express it as a negative number.)

   (c) Suppose the share price of XYZ is $25 on June 3, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? (If it is a net loss, express it as a negative number.)

   (d) Suppose the share price of XYZ is $23 on June 3, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? (If it is a net loss, express it as a negative number.)

   (e) Suppose the share price of XYZ is $20 on June 3, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? (If it is a net loss, express it as a negative number.)

2. Suppose stock XYZ has a share price of $23 on March 25, 2005. A European put option on XYZ with a strike price of $25 and an expiration date of June 3, 2005 sells for $0.50.

   (a) Suppose the share price of XYZ is $35 on June 3, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? (If it is a net loss, express it as a negative number.)

   (b) Suppose the share price of XYZ is $27 on June 3, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? (If it is a net loss, express it as a negative number.)

   (c) Suppose the share price of XYZ is $25 on June 3, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? (If it is a net loss, express it as a negative number.)

   (d) Suppose the share price of XYZ is $23 on June 3, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? (If it is a net loss, express it as a negative number.)

   (e) Suppose the share price of XYZ is $20 on June 3, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? (If it is a net loss, express it as a negative number.)

3. Suppose stock ABC has a share price of $137 on February 11, 2005. A European call option on ABC with a strike price of $128 and an expiration date of April 8, 2005 sells for $1.10.

   (a) Suppose the share price of ABC is $105 on April 8, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? (If it is a net loss, express it as a negative number.)

   (b) Suppose the share price of ABC is $120 on April 8, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? (If it is a net loss, express it as a negative number.)

   (c) Suppose the share price of ABC is $128 on April 8, 2005.
i. What is the option worth?
ii. What is the net profit to the holder of the option? *(If it is a net loss, express it as a negative number.)*

(d) Suppose the share price of ABC is $137 on April 8, 2005.
   i. What is the option worth?
   ii. What is the net profit to the holder of the option? *(If it is a net loss, express it as a negative number.)*

(e) Suppose the share price of ABC is $150 on April 8, 2005.
   i. What is the option worth?
   ii. What is the net profit to the holder of the option? *(If it is a net loss, express it as a negative number.)*

4. Suppose stock ABC has a share price of $137 on February 11, 2005. A European put option on ABC with a strike price of $128 and an expiration date of April 8, 2005 sells for $1.10.

   (a) Suppose the share price of ABC is $105 on April 8, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? *(If it is a net loss, express it as a negative number.)*

   (b) Suppose the share price of ABC is $120 on April 8, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? *(If it is a net loss, express it as a negative number.)*

   (c) Suppose the share price of ABC is $128 on April 8, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? *(If it is a net loss, express it as a negative number.)*

   (d) Suppose the share price of ABC is $137 on April 8, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? *(If it is a net loss, express it as a negative number.)*

   (e) Suppose the share price of ABC is $150 on April 8, 2005.
      i. What is the option worth?
      ii. What is the net profit to the holder of the option? *(If it is a net loss, express it as a negative number.)*