

Consider the following Boolean expressions.

I.

$A \ \&\& \ B$

II.

$!A \ \&\& \ !B$

Which of the following best describes the relationship between values produced by expression I and expression II?

- (A) Expression I and expression II evaluate to different values for all values of A and B .
- (B) Expression I and expression II evaluate to the same value for all values of A and B .
- (C) Expression I and expression II evaluate to the same value only when A and B are the same.
- (D) Expression I and expression II evaluate to the same value only when A and B differ.
- (E) Expression I and expression II evaluate to the same value whenever A is true.

Consider the following code segment.

```
if (a < b || c != d)
{
    System.out.println("dog");
}
else
{
    System.out.println("cat");
}
```

Assume that the `int` variables `a`, `b`, `c`, and `d` have been properly declared and initialized. Which of the following code segments produces the same output as the given code segment for all values of `a`, `b`, `c`, and `d` ?

(A)

```
if (a < b && c != d)
{
    System.out.println("dog");
}
else
{
    System.out.println("cat");
}
```

(C)

```
if (a > b && c == d)
{
    System.out.println("cat");
}
else
{
    System.out.println("dog");
}
```

(B)

```
if (a < b && c != d)
{
    System.out.println("cat");
}
else
{
    System.out.println("dog");
}
```

(D)

```
if (a >= b || c == d)
{
    System.out.println("cat");
}
else
{
    System.out.println("dog");
}
```

(E)

```
if (a >= b && c == d)
{
    System.out.println("cat");
}
else
{
    System.out.println("dog");
}
```