

# 数学冲刺

GMAT



## 第三章 代数

# 本节课授课要点

## 3.1

### 代数核心知识及重点题目

### 3.1 代数核心知识及重点题目

#### 代数基本公式

$$(a+b)^2 = a^2 + 2ab + b^2 \qquad a^3 - b^3 = (a-b)(a^2 + ab + b^2)$$

$$(a-b)^3 = a^3 - 3a^2b + 3ab^2 - b^3 \qquad a^3 + b^3 = (a+b)(a^2 - ab + b^2)$$

$$a^2 - b^2 = (a+b)(a-b) \qquad (a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$$

### 3.1 代数核心知识及重点题目

$$\frac{0.99999999}{1.0001} - \frac{0.99999991}{1.0003} =$$

- A.  $10^{-8}$
- B.  $3(10^{-8})$
- C.  $3(10^{-4})$
- D.  $2(10^{-4})$
- E.  $10^{-4}$

## 3.1 代数核心知识及重点题目

### 指数公式

$$a^x \cdot a^y = a^{x+y}$$

$$a^x \div a^y = a^{x-y}$$

$$(a^x)^y = a^{xy}$$

$$a^{\frac{1}{x}} = \sqrt[x]{a}$$

$$a^x \cdot b^x = (ab)^x$$

$$a^{-x} = \frac{1}{a^x}$$

$$a^0 = 1 (a \neq 0)$$

$$a^{\frac{n}{m}} = \sqrt[m]{a^n}$$

## 3.1 代数核心知识及重点题目

Is  $x^3$  equal to 125 ?

(1)  $x > 4$

(2)  $x < 6$

### 3.1 代数核心知识及重点题目

If  $n$  is an integer and  $x^n - x^{-n} = 0$ , what is the value of  $x$ ?

(1)  $x$  is an integer.

(2)  $n \neq 0$

## 3.1 代数核心知识及重点题目

### 绝对值与不等式

### 3.1 代数核心知识及重点题目

If  $y$  is an integer and  $y = |x| + x$ , is  $y=0$ ?

(1)  $x < 0$

(2)  $y < 1$

### 3.1 代数核心知识及重点题目

- 对于指数不等式，底要从 $<-1, (-1, 0), (0, 1), >1$ 四个区间考虑。
- 不要忽略 $-1, 0, 1$ 三个特殊情况
- 情况较复杂，试数最保险。

### 3.1 代数核心知识及重点题目

If  $x > y^2 > z^4$ , which of the following statement could be true?

I.  $x > y > z$

II.  $z > y > x$

III.  $x > z > y$

I only

I and II only

I and III only

II and III only

I II and III

### 3.1 代数核心知识及重点题目

Is  $xy + z = z$ , is  $|x - y| > 0$  ?

(1)  $x = 0$

(2)  $y = 0$

## 3.1 代数核心知识及重点题目

### 不等式应用

- ◆ 核心：抓住临界点

### 3.1 代数核心知识及重点题目

A certain right triangle has sides of length  $x, y$  and  $z$ , where  $x < y < z$ . If the area of this triangular region is 1, which of the following indicates all of the possible values of  $y$ ?

A.  $y > \sqrt{2}$

B.  $\frac{\sqrt{3}}{2} < y < \sqrt{2}$

C.  $\frac{\sqrt{2}}{3} < y < \frac{\sqrt{3}}{2}$

D.  $\frac{\sqrt{3}}{4} < y < \frac{\sqrt{2}}{3}$

E.  $y < \frac{\sqrt{3}}{4}$

### 3.1 代数核心知识及重点题目

Material A costs \$3 per kilogram ,and material B costs \$5 per kilogram .If 10 kilograms of material K consists of  $x$  kilograms of material A and  $y$  kilograms of material B ,is  $x > y$  ?

(1)  $y > 4$

(2) The cost of the 10 kilograms of material K is less than \$40

A. Statement (1) ALONE is sufficient ,but statement (2) alone is not sufficient .

B. Statement (2) ALONE is sufficient ,but statement (1) alone is not sufficient .

C.BOTH statement TOGETHER are sufficient ,but NEITHER statement ALONE is sufficient

D. EACH statement ALONE is sufficient

E. Statement (1)and (2) TOGETHER are NOT sufficient

## 3.1 代数核心知识及重点题目

定义性运算

## 3.1 代数核心知识及重点题目

The operation\* represents either addition ,subtraction,or multiplication of integers ,what is the value of  $1*0$ ?

(1)  $0*2=2$

(2)  $2*0=2$

- A. Statement (1) ALONE is sufficient ,but statement (2) alone is not sufficient .
- B. Statement (2) ALONE is sufficient ,but statement (1) alone is not sufficient .
- C.BOTH statement TOGETHER are sufficient ,but NEITHER statement ALONE is sufficient
- D. EACH statement ALONE is sufficient
- E. Statement (1)and (2) TOGETHER are NOT sufficient .

# 回顾本节课授课要点

## 3.1

### 代数核心知识及重点题目

# 预告下节课授课要点

## 4.1

几何核心知识点及重点题目

**THANK YOU**