LESSON ONE

BY WILL

GRE QUANTITATIVE

CONTENTS

1. 无手机课堂
2. 备好笔记本和草稿纸
3. 最简单功能的计算器(带根号计算) (其实没什么卵用)

Classroom Rules

GRE

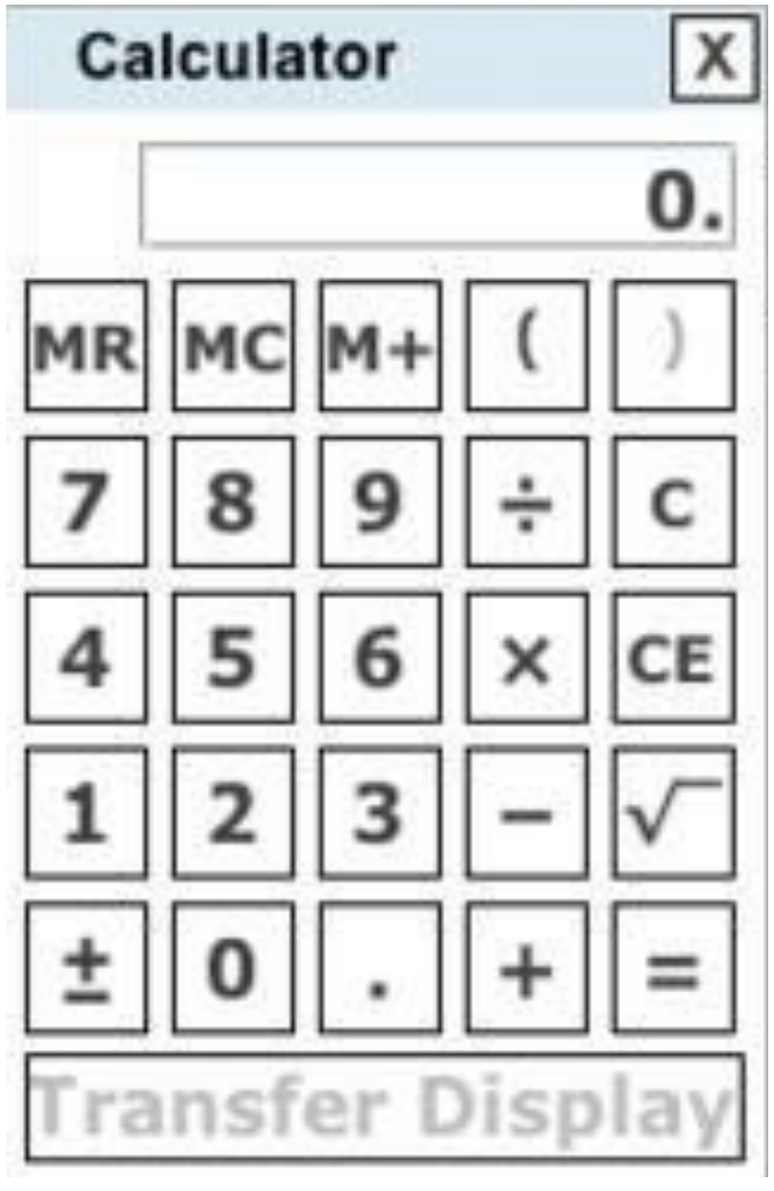
- 考试流程
- 总分 260-340
- AW (0-6)
- Verbal (130-170)
- Quantitative (130-170)
- Section-level Adaptive Test

Structure of the Computer-delivered Test

Measure	Number of Questions	Allotted Time
Analytical Writing (One section with two separately timed tasks)	One "Analyze an Issue" task and one "Analyze an Argument" task	30 minutes per task
Verbal Reasoning (Two sections)	20 questions per section	30 minutes per section
Quantitative Reasoning (Two sections)	20 questions per section	35 minutes per section
Unscored[1]	Varies	Varies
Research[2]	Varies	Varies

QUANTITATIVE

- 2 or 3 sections
- 20 questions, 35 minutes per section
- 105s /question
- Build-in Calculator
- MR/MC/M+
- C/CE



GRE数学资料

- 大OG
- 小OG
- PP2（官方软件）
- 各大论坛（机经）

GRE数学题型

- 单项选择题 (Multiple-choice - Select One)
- 不定项选择题 (Multiple-choice - Select One or More)
- 数字填空题 (Numeric Entry)
- 数量比较题 (Quantitative Comparison)

注意事项

Notes: All numbers used are real numbers.

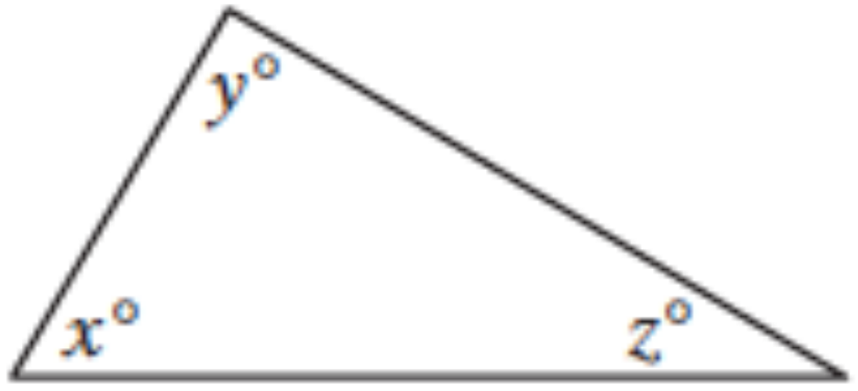
All figures are assumed to lie in a plane unless otherwise indicated.

Geometric figures, such as lines, circles, triangles, and quadrilaterals, **are not necessarily** drawn to scale. That is, you should **not** assume that quantities such as lengths and angle measures are as they appear in a figure. You should assume, however, that lines shown as straight are actually straight, points on a line are in the order shown, and more generally, all geometric objects are in the relative positions shown. For questions with geometric figures, you should base your answers on geometric reasoning, not on estimating or comparing quantities by sight or by measurement.

Coordinate systems, such as *xy*-planes and number lines, **are** drawn to scale; therefore, you can read, estimate, or compare quantities in such figures by sight or by measurement.

Graphical data presentations, such as bar graphs, circle graphs, and line graphs, **are** drawn to scale; therefore, you can read, estimate, or compare data values by sight or by measurement.

单项选择题



In the figure above, what is the value of $\frac{x+y+z}{45}$?

(A) 2

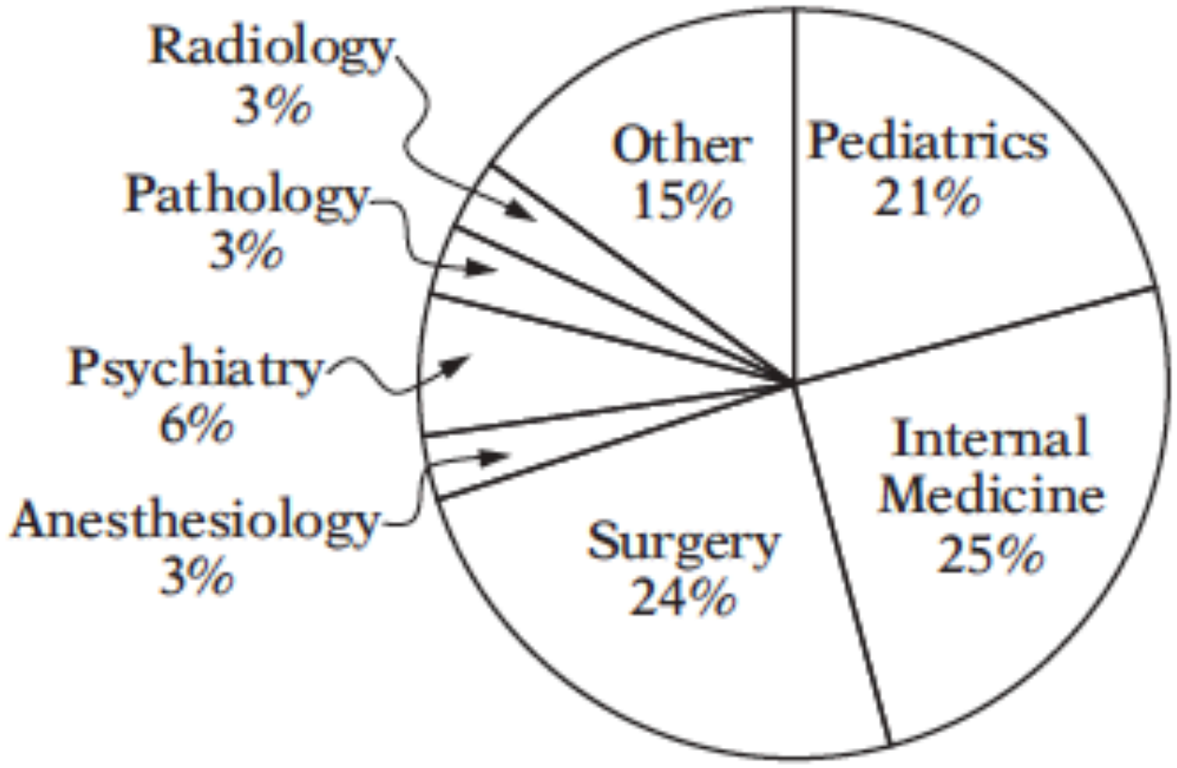
(B) 3

(C) 4

(D) 5

(E) 6

不定项选择题



The circle graph above shows the distribution of 200,000 physicians by specialty. Which of the following sectors of the circle graph represent more than 40,000 physicians?

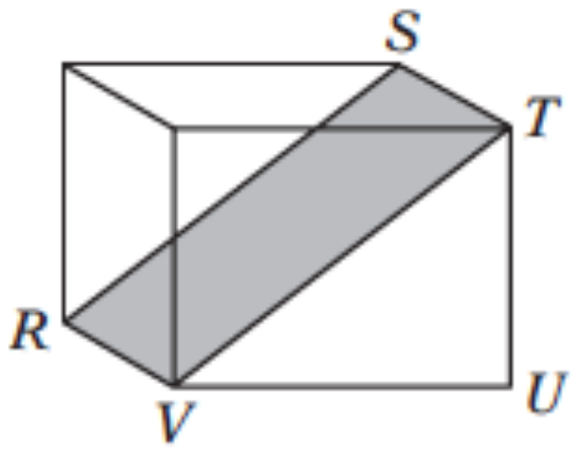
Indicate all such sectors.

- A Pediatrics
- B Internal Medicine
- C Surgery
- D Anesthesiology
- E Psychiatry

数字填空题

Enter your answer in the answer box(es) below the question.

- **Your answer may be an integer, a decimal, or a fraction, and it may be negative.**
- **If a question asks for a fraction, there will be two boxes—one for the numerator and one for the denominator.**
- **Equivalent forms of the correct answer, such as 2.5 and 2.50, are all correct. Fractions do not need to be reduced to lowest terms.**
- **Enter the exact answer unless the question asks you to round your answer.**



In the rectangular solid above, $TU = 3$, $UV = 4$, and $VR = 2$. What is the area of the shaded rectangular region?

比较大小题

Compare Quantity A and Quantity B, using additional information centered above the two quantities if such information is given. Select one of the following four answer choices and fill in the corresponding oval to the right of the question.

Ⓐ Quantity A is greater.
Ⓑ Quantity B is greater.
Ⓒ The two quantities are equal.
Ⓓ The relationship cannot be determined from the information given.

A symbol that appears more than once in a question has the same meaning throughout the question.

Quantity A	Quantity B
$(2)(6)$	$2 + 6$

CURRICULUM

- Arithmetic 算术 (Lesson One)
- Algebra 代数 (Lesson One)
- Geometry 几何 (Lesson Two)
- Data Analysis 数据分析 (Lesson Two)
- Quantitative Comparison 比较大小题 (Lesson Two)
- Integrated Practice 综合练习 (Lesson Three)
- 数学词汇补充
- 考点归纳
- 技巧讲解
- 习题练习

常见问题

术语不熟悉——数学词汇背诵

exponent

radical sign

recurring decimal

reciprocal

factorization

octagon

常见问题

- 读题慢——词汇+阅读能力
- A certain club has 10 members, including Harry. One of the 10 members is to be chosen at random to be the president, one of the remaining 9 members is to be chosen at random to be the secretary, and one of the remaining 8 members is to be chosen at random to be the treasurer. What is the probability that Harry will be either the member chosen to be the secretary or the member chosen to be the treasurer?

速度+质量=170

ARITHMETIC 算术

ARITHMETIC 考点

- 奇偶数
- 因数与质因数
- 最大公约数与最小公倍数
- 余数
- 小数, 分数与科学计算法
- 比率与比例

奇偶数 ODD AND EVEN INTEGERS

偶+偶=偶, 偶-偶=偶, 偶*偶=偶;

奇+奇=偶, 奇-奇=偶, 奇*奇=奇;

奇+偶=奇, 奇-偶=奇, 奇*偶=偶.

多个整数之和为奇数 ——————— 其中包含奇数个奇数

多个整数之和为偶数 ——————— 其中包含偶数个奇数

多个整数之积为奇数 ——————— 全部都是奇数

多个整数之积为偶数 ——————— 至少包含有一个偶数

ARITHMETIC PRACTICE

If x is an even integer and y is an odd integer, which of the following CANNOT be true?

A. x^y is an even integer.

B. y^x is an odd integer.

C. x is a multiple of y.

D. y is a multiple of x.

E. xy is an even integer.

ARITHMETIC PRACTICE

If a and b are positive integers such that a – b and a/b are both even integers, which of the following must be an odd integer?

A. a/2

B. b/2

C. (a + b)/2

D. (a + 2)/2

E. (b + 2)/2

ARITHMETIC PRACTICE

If $a^2 + b^2 = c^2$, where a, b, c are integers. Which of the following CANNOT be a value of a+b+c ?

A. 2

B. 1

C. -2

D. 4

E. 6

质数与因数 PRIME NUMBER AND FACTOR

因数/因子/约数/除数: factor, divisor

倍数: multiple

prime number 质数, composite 合数, prime factorization质因数分解

核心考点：质数之积为合数，质数与奇偶性的关系

质数(prime number): 大于1 的整数, 除了1 和它本身外, 不能被其他正整数所整除的, 称为质数, 也叫素数; 除2以外所有质数都是奇数, 但不是所有奇数都是质数.

合数(composite): 含有两个以上因数的数 (完全平方数的因数个数的奇偶性?)

ARITHMETIC PRACTICE

The sum of the prime numbers that are greater than 60 and less than 70 is

A. 67

B. 128

C. 191

D. 197

E. 260

ARITHMETIC PRACTICE

If x is the product of the positive integers from 1 to 8, inclusive, and if i, k, m, and p are positive integers such that $x = 2^i 3^k 5^m 7^p$, then $i + k + m + p =$

A. 4

B. 7

C. 8

D. 11

E. 12

ARITHMETIC PRACTICE

If $y = x + x^{n+1} + x^{n+2} + x^{n+3}$, and if $x = -1$, and n is the sum of the first 404 prime numbers, then y=

A. -2

B. -1

C. 0

D. 1

E. 2

ARITHMETIC PRACTICE

n is a factor of the product of all the odd integers from 99 to 199, inclusive. If $n=5^k$, then the greatest possible value of k is

A. 10

B. 12

C. 13

D. 15

E. 20

ARITHMETIC PRACTICE

How many factors does 360 have?

A. 24

B. 36

C. 48

D. 120

E. 360

最大公约数和最小公倍数 GREATEST COMMON DIVISORS AND LEAST COMMON MULTIPLES

- 两个数的最大公约数与最小公倍数:
  - 两个数分别各种分解质因数
    - 每一个质数, 取较小的指数, 相乘得到最大公约数;
    - 每一个质数, 取较大的指数, 相乘得到最小公倍数.

ARITHMETIC PRACTICE

If M is the least common multiple of 90, 196, and 300, which of the following is NOT a factor of M ?

A. 600

B. 700

C. 900

D. 2,100

E. 4,900

ARITHMETIC PRACTICE

If n is a positive integer and the greatest common divisor of (n –1)!, (n +1)!, and (n +3)! is 120, then n =

A. 2

B. 3

C. 4

D. 5

E. 6

ARITHMETIC PRACTICE

690,△70

If △ represents a single digit in the integer above, which of the following CANNOT be a factor of this integer?

A. 2

B. 3

C. 4

D. 5

E. 7

余数 REMAINDERS

a divided by b is q remainder r $\Leftrightarrow$ a=bq+r where $(0 \leq r < b)$ a除以b等于q余r
quotient商; remainder余数

核心考点：求余数

被2整除的特征:

被3整除的特征:

被4整除的特征:

被5整除的特征:

ARITHMETIC PRACTICE

What is the sum of the remainders when the first 40 positive integers are divided by 6 ?

A. 96

B. 100

C. 120

D. 132

E. 136

ARITHMETIC PRACTICE

If n is a positive integer, what is the remainder when $3^{8n+3} + 2$ is divided by 5?

A. 0

B. 1

C. 2

D. 3

E. 4

小数, 分数和科学计数法

识别各位数字名称"7654.321"，其中：

-"7": thousands

-"6": hundreds

-"5": tens

-"4": units (or ones)

-"." : decimal point

-"3": tenths

-"2": hundredths

-"1": thousandths

ARITHMETIC PRACTICE

On a recent trip, Cindy drove her car 380 miles, rounded to the nearest 10 miles, and used 16.3 gallons of gasoline, rounded to the nearest tenths gallon. The actual number of miles per gallon that Cindy's car got on this trip must have been between

A. 380/16.35 and 380/16.25

B. 380/16.3 and 375/16.25

C. 375/16.3 and 385/16.3

D. 375/16.35 and 385/16.25

E. 385/16.35 and 375/16.25

ARITHMETIC PRACTICE

If the tens digit x and the units digit y of a positive integer n are reversed, the resulting integer is 9 more than n. What is y in terms of x ?

A.10 – x

B. 9 – x

C. x + 9

D. x – 1

E. x + 1

ARITHMETIC PRACTICE

Which of the following fractions has a decimal equivalent that is a terminating decimal?

A. 10/189

B. 15/196

C. 16/225

D. 25/144

E. 39/128

ARITHMETIC PRACTICE

Of the following which best approximates

$$\frac{(0.1667)(0.8333)(0.3333)}{(0.2222)(0.6667)(0.125)}$$

A. 2.00

B. 2.40

C. 2.43

D. 2.50

E. 3.43

ARITHMETIC PRACTICE

If $10^{50} - 74$ is written as an integer in base decimal notation, what is the sum of the digits in that integer?

A. 424

B. 431

C. 440

D. 449

E. 456

比率与比例 RATIOS AND PROPORTIONS

the ratio of A to B 表示为 A : B .

There is twice as much A as B 表示为 A = 2B .

ARITHMETIC PRACTICE

A certain fraction is equivalent to 2/5 . If the numerator of the fraction is increased by 4 and the denominator is doubled, the new fraction is equivalent to 1/3. What is the sum of the numerator and denominator of the original fraction?

A. 21

B. 26

C. 28

D. 35

E. 49

ARITHMETIC PRACTICE

A merchant purchased a jacket for $60 and then determined a selling price that equaled the purchase price of the jacket plus a markup that was 25 percent of the selling price. During a sale, the merchant discounted the selling price by 20 percent and sold the jacket. What was the merchant's gross profit on this sale?

A. $0

B. $3

C. $4

D. $12

E. $15

ARITHMETIC PRACTICE

In a certain formula, p is directly proportional to s and inversely proportional to r. If p = 1 when r = 0.5 and s = 2, what is the value of p^2 in terms of r and s ?

A. s/r

B. r/4s

C. s/4r

D. r/s

E. 4r/s

ARITHMETIC考点

- 奇偶数
- 因数与质因数
- 最大公约数与最小公倍数
- 余数
- 小数, 分数与科学计算法
- 比率与比例

ALGEBRA 代数

ALGEBRA考点

- 指数运算
- 解方程
- 不等式
- 数列

指数运算 RULES OF EXPONENTS

$a^m * a^n = a^{m+n}$

$a^m / a^n = a^{m-n}$

$(a^m)^n = a^{mn}$

$a^m * b^m = (ab)^m$

$a^m / b^m = (a/b)^m$

ALGEBRA PRACTICE

$(8)^2(3)^3(2)^4/(96)^2 =$

3

ALGEBRA PRACTICE

$(10^{100})^{(10\text{^}100)} = 10^{(10\text{^}k)}$, k =

102

ALGEBRA PRACTICE

The function f is defined for each positive three-digit integer n by $f(n) = 2^x 3^y 5^z$, where x, y and z are the hundreds, tens, and units digits of n, respectively. If m and v are three-digit positive integers such that $f(m) = 9f(v)$, then $m - v = ?$

A. 8

B. 9

C. 18

D. 20

E. 80

ALGEBRA PRACTICE

Of the following values of n, the value of $(-1/5)^{-n}$ will be greatest for n =

A. –3

B. –2

C. 0

D. 2

E. 3

解方程 EQUATIONS

一元二次方程 $a x^2 + b x + c = 0$

标准根的公式为：$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

ALGEBRA PRACTICE

If $(x^2 + 6x + 9) + 6(x + 3)+9 = 0$,then x = ,

A. -6

B. -3

C. 0

D. 3

E. 6

ALGEBRA PRACTICE

A square playground has the same area as a rectangular playground that is 30 meters longer but 20 meters narrower. What is the length, in meters, of a side of the square playground?

A. $10\sqrt{5}$

B. $10\sqrt{6}$

C. 25

D. 50

E. 60

ALGEBRA PRACTICE

If the sum of two positive integers is 24 and the difference of their squares is 48, what is the product of the two integers?

A. 108

B. 119

C. 128

D. 135

E. 143

ALGEBRA PRACTICE

A certain theater has 100 balcony seats. For every $2 increase in the price of a balcony seat above $10, 5 fewer seats will be sold. If all the balcony seats are sold when the price of each seat is $10, which of the following could be the price of a balcony seat if the revenue from the sale of balcony seats is $1,360 ?

A. $12

B. $14

C. $16

D. $17

E. $18

不等式 INEQUALITY

- 对已有不等式的两边取倒数或负数, 不等号通常要改变方向
- 对 $\sqrt[4]{x}, \sqrt[3]{x}, \sqrt{x}, x, x^2, x^3, x^4$ 等函数的性质有一定的认识.

在 x, x^2, x^3 几个函数的比较大小中，对x的取值范围要有清醒的分段意识:

$x < -1$,　$-1 < x < 0$,　$0 < x < 1$,　$x > 1$

绝对值: $|x|$ 恒非负

ALGEBRA PRACTICE

If $x > 0.9$, which of the following could be the value of x ?

A. $\sqrt{0.81}$

B. $\sqrt{0.9}$

C. (0.9)

D. $(0.9)(0.9)$

E. $1 - \sqrt{0.01}$

ALGEBRA PRACTICE

If y + | y | = 0, which of the following must be true?

[ ] y > 0

[ ] y≥0

[ ] y < 0

[ ] y≤0

[ ] y = 0

ALGEBRA PRACTICE

Which of the following inequalities has a solution set that, when graphed in the number line, is a single line segment of finite length?

A. $x^4 \geq 16$

B. $x^3 \leq 27$

C. $x^2 \geq 16$

D. $2 \leq |x| \leq 5$

<u>E. $2 \leq 3x + 4 \leq 6$</u>

数列 SEQUENCE

- 等差数列 arithmetic sequence
  - 等差数列之和=(首项+尾项)*项数/2
- 等比数列 geometric sequence

ALGEBRA PRACTICE

If the sum of 7 consecutive integers is 434, then the greatest of the 7 integers is

A. 65

B. 66

C. 67

D. 68

E. 69

ALGEBRA PRACTICE

In the sequence $R_{n+1} - R_n = (-1)^n/n$, what is the relationship of R_1 , R_2 ,and R_3 ?

A. $R_1 < R_2 < R_3$

B. $R_1 < R_3 < R_2$

C. $R_2 < R_1 < R_3$

D. $R_2 < R_3 < R_1$

E. $R_3 < R_1 < R_2$

ALGEBRA PRACTICE

In a certain sequence, the first term is 1, and each successive term is 1 more than the reciprocal of the term that immediately precedes it. What is the fifth term of the sequence?

A. 3/5

B. 5/8

C. 8/5

D. 5/3

E. 9/2

ALGEBRA PRACTICE

In the sequence 1, 2, 4, 8, 16, 32, ... , each term after the first is twice the previous term. What is the sum of the 16th, 17th, and 18th terms in the sequence?

A. 2^{18}

B. $3(2^{17})$

C. $7(2^{16})$

D. $3(2^{16})$

E. $7(2^{15})$

ALGEBRA PRACTICE

The sequence $a_1, a_2, \ldots a_n, \ldots$ is such that $a_n = a_{n-1} - a_{n-2}$ for all positive integers $n > 2$. If $a_1 = -1$ and $a_2 = 1$, what is the sum of the first 1000 terms in the sequence?

A. 0

B. 3

C. 750

D. 1000

E. 3000

ALGEBRA考点

- 指数运算
- 解方程
- 不等式
- 数列

1. MATH VOCABULARY

2. 大OG PRACTICE QUESTIONS (4 SETS)

3. 大OG TEST1&2 (SECTION 5&6)

Homework

LESSON TWO

BY WILL

GRE QUANTITATIVE

CONTENTS

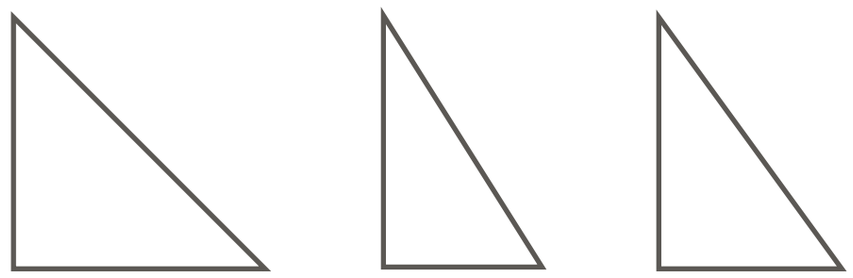
GEOMETRY 几何

GEOMETRY考点

- 三角形与四边形
- 圆
- 立体几何
- 直角坐标系

三角形与四边形 TRIANGLES AND QUADRILATERALS

- 三角形的某些性质：
  - 三角形内角和为180°
  - 三角形两边之和大于第三边，两边之差小于第三边.
  - 三角形中，较大角的对边也较大.
- 勾股定理：$a^2 + b^2 = c^2$ (直角边a, 直角边b, 斜边c)
- 要对几种形状的直角三角形要特别熟悉：
- 三角形: 面积 = 1/2 * 底 * 高



- 矩形 (Rectangles) : 面积 = 长* 宽; 周长 = 2* (长 + 宽)
  - 正方形 (Squares) : 面积 = 边长^2; 周长 = 4 * 边长

三角形与四边形 TRIANGLES AND QUADRILATERALS

等边 equilateral

等腰 isosceles

四边形 quadrilateral

四倍 quadruple

菱形 diamond rhombus

梯形 trapezoid

直角 right angle

锐角 acute angle

钝角 obtuse angle

短边 arm

长边 leg

斜边 hypotenuse

多边形 POLYGONS

五边形 pentagon

内角和 = (N-2)*180度

六边形 hexagon

七边形 heptagon

八边形 octagon

九边形 nonagon

十边形 decagon

正...regular

GEOMETRY PRACTICE

If each side of △ACD above has length 3 and if AB has length 1, what is the area of region BCDE ?

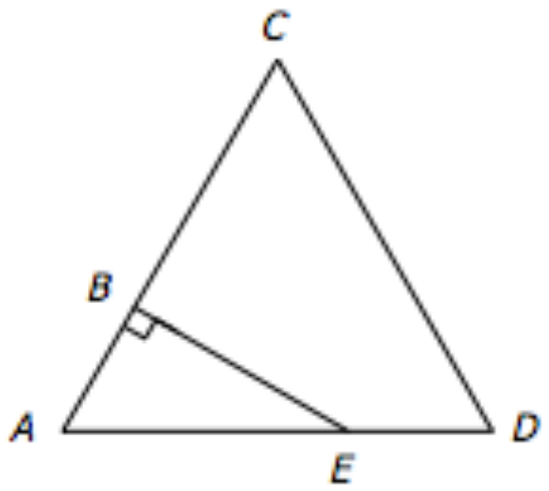
A. 9/4

B. (7/4) $\sqrt{3}$

C. (9/4) $\sqrt{3}$

D. (7/2) $\sqrt{3}$

E. 6 + $\sqrt{3}$



GEOMETRY PRACTICE

A ladder 25 feet long is leaning against a wall that is perpendicular to level ground. The bottom of the ladder is 7 feet from the base of the wall. If the top of the ladder slips down 4 feet, how many feet will the bottom of the ladder slip?

A. 4

B. 5

C. 8

D. 9

E. 15

圆 CICLE

半径为r的圆：　面积＝πr^2

周长＝$2\pi r$

角度为x°的圆弧: 弧长arc＝$2\pi r * (x/360)$

角度为x°扇形面积: 扇形sector = $\pi r^2 * (x/360)$

同一段圆弧: 圆心角 = 2 * 圆周角

GEOMETRY PRACTICE

If the number of square units in the area of circle C is twice the number of linear units in the circumference of C, what is the number of square units in the area?

A. 4

B. 8

C. 4π

D. 8π

E. 16π

GEOMETRY PRACTICE

In the circle above, PQ is parallel to diameter OR, and OR has length 18. What is the length of minor arc PQ ?

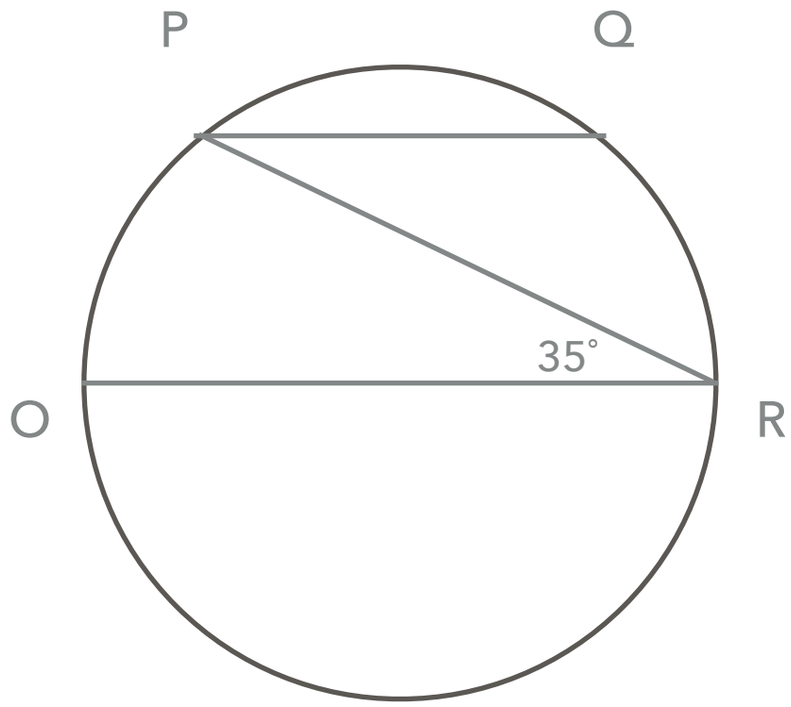
A. 2π

B. $(9/4)\pi$

C. $(7/2)\pi$

D. $(9/2)\pi$

E. 3π



GEOMETRY PRACTICE

In the figure above, A is the point of tangency for two circles and also the center of the third circle. If the radii of three circles are 1, what is the external perimeter of the figure?

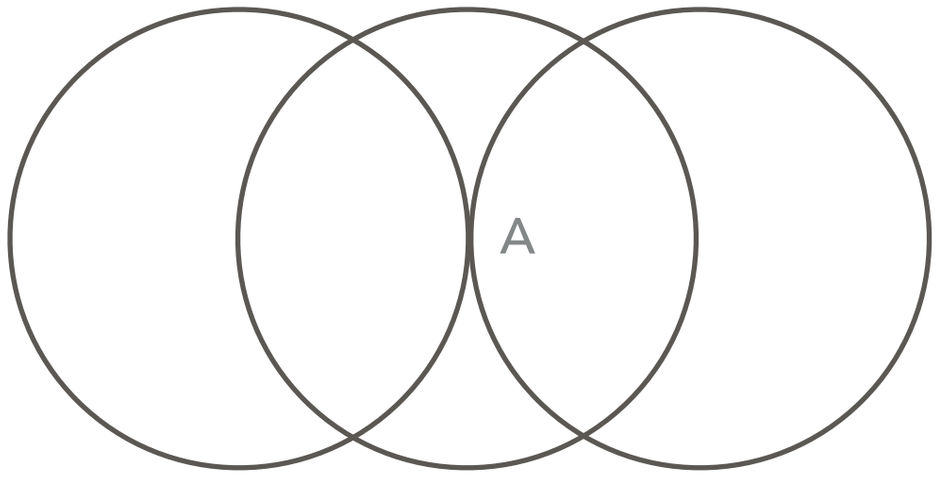
A. (7/3)π

<u>B. (10/3)π</u>

C. 4π

D. (14/3)π

E. 6π



长方体 正方体 圆柱 RECTANGULAR SOLIDS CUBES CYLINDERS

长方体体积: 长 * 宽 * 高

正方体体积: 边长^3

圆柱的体积: π * 底面半径^2 * 高

GEOMETRY PRACTICE

In the rectangular solid above, the three sides shown have areas 12, 15, and 20, respectively. What is the volume of the solid?

A. 60

B. 120

C. 450

D. 1,800

E. 3,600

GEOMETRY PRACTICE

A grocer is storing small cereal boxes in large cartons that measure 25 inches by 42 inches by 60 inches. If the measurement of each small cereal box is 7 inches by 6 inches by 5 inches, then what is the maximum number of small cereal boxes that can be placed in each large carton?

A. 25

B. 210

C. 252

D. 300

E. 420

GEOMETRY PRACTICE

The inside dimensions of a rectangular wooden box are 6 inches 8 inches by 10 inches. A cylindrical canister is to be placed inside the box so that it stands upright when the closed box rests on one of its six faces. Of all such canisters that could be used, what is the radius, in inches, of the one that has maximum volume?

A. 3

B. 4

C. 5

D. 6

E. 8

平面直角坐标几何 PLANE RECTANGULAR COORDINATE GEOMETRY

平面直角坐标上两点间距离为：$\sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$

斜截式：$y = kx + b$ 其中，k 为斜率 (Slope)

b为y轴截距 (Intercept)

$$k = \frac{y_2 - y_1}{x_2 - x_1}$$

若两直线垂直，其斜率乘积为 −1

GEOMETRY PRACTICE

In the rectangular coordinate system above, the line is perpendicular bisector of segment AB (not shown), and the x-axis is the perpendicular bisector of segment BC (not shown). If the coordinates of point A are (2, 3), what are the coordinates of point C ?

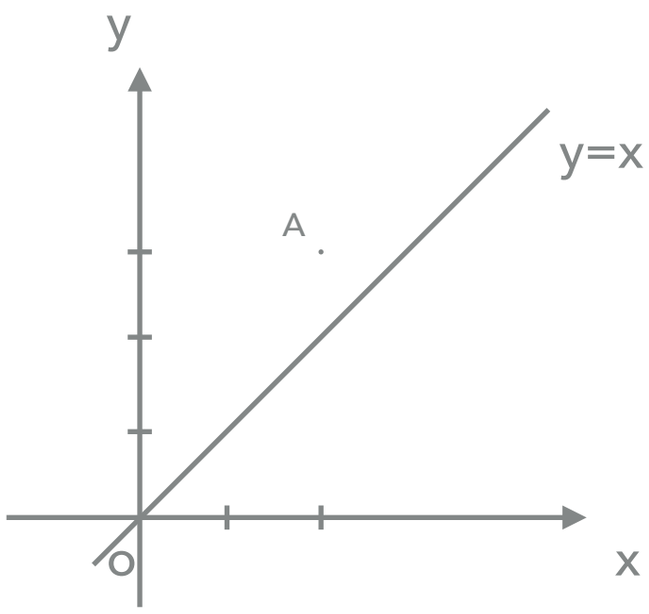
A. (–3, –2)

B. (–3, 2)

C. (2, –3)

D. (3, –2)

E. (2, 3)



GEOMETRY PRACTICE

In the rectangular coordinate system shown above, if the slope of line k (not shown) is positive, which of the following statements must be true ?

[ ] The x-intercept of k is negative.

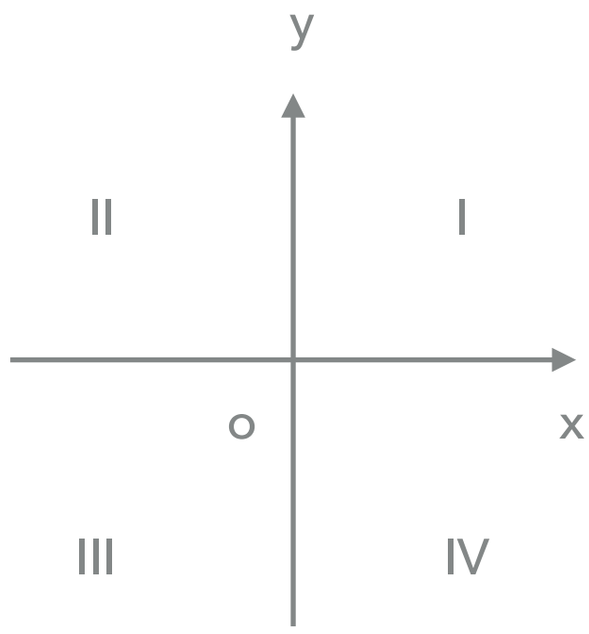
[ ] The y-intercept of k is positive.

[ ] k intersects the quadrant I.

[ ] k intersects the quadrant II.

[ ] k intersects the quadrant III.

[ ] k intersects the quadrant IV.



GEOMETRY PRACTICE

In the rectangular coordinate system above, both of two tangent circles are tangent to the x axis. If the radius of the two circles are 4 and 6, respectively, what is the slope of the line on which two centers lie?

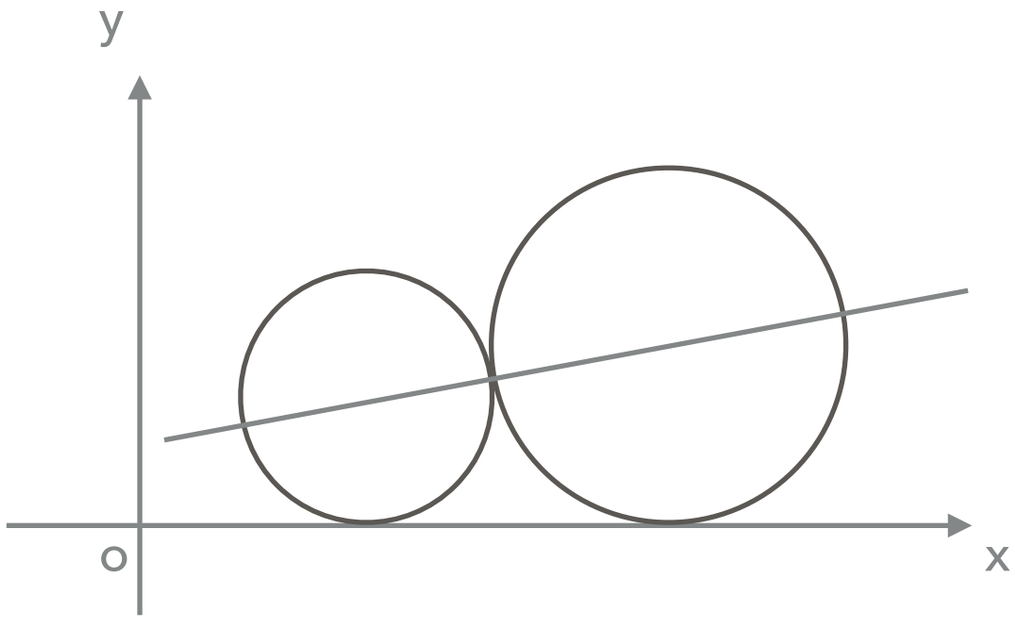
A. $1/(2\sqrt{6})$

B. $1/(3\sqrt{2})$

C. $1/3$

D. $1/\sqrt{5}$

E. $1/2$



GEOMETRY考点

- 三角形与四边形
- 圆
- 立体几何
- 直角坐标系

DATA ANALYSIS

DATA ANALYSIS考点

- 利息问题
- 集合问题
- 排列组合问题
- 概率问题
- 描述统计学

利息问题

DATA ANALYSIS PRACTICE

Mary invested $14,000 for 3 years in a certificate of deposit paying 9.25% simple annual interest. How many more interest would Mary have received if the interest rate on this certificate had been 9.75% simple annual interest?

A. $21

B. $210

C. $420

D. $2,100

E. $4,200

DATA ANALYSIS PRACTICE

A 2-year certificate of deposit is purchased for k dollars. If the certificate earns interest at an annual rate of 6 percent compounded quarterly, which of the following represents the value, in dollars, of the certificate at the end of the 2 years?

A. 1.06^2k

B. 1.06^8k

C. 1.015^2k

D. 1.015^8k

E. 1.03^4k

文氏图法 & 表格法

集合问题

DATA ANALYSIS PRACTICE

According to a survey, 93 percent of teenagers have used a computer to play games, 89 percent have used a computer to write reports, and 5 percent have not used a computer for either of these purposes. What percent of the teenagers in the survey have used a computer both to play games and to write reports?

A. 82%

B. 87%

C. 89%

D. 92%

E. 95%

DATA ANALYSIS PRACTICE

In a marketing survey for products some people were asked which of the products, if any, they use. Of the people surveyed, a total of 400 use A, a total of 400 use B, a total of 450 use C, a total of 200 use A and B simultaneously, a total of 175 use B and C simultaneously, a total of 200 use C and A simultaneously, a total of 75 use A, B, and C simultaneously, and a total of 200 use none of the products. How many people were surveyed?

A. 950

B. 975

C. 1,000

D. 1,025

E. 1,050

DATA ANALYSIS PRACTICE

How many integers between 1 and 100, inclusive, can be divided by none of 2, 3, and 5 ?

A. 24

B. 26

C. 28

D. 30

E. 32

DATA ANALYSIS PRACTICE

A shipment of banners contains banners of two different shapes, triangular and square, and two different colors, red and green. In a particular shipment 26% of the banners are square and 35% of the banners are red. If 60% of the red banners in the shipment are square, what is the ratio of red triangular banners to green triangular banners?

A. 7/50

B. 3/13

C. 7/30

D. 13/37

E. 35/26

DATA ANALYSIS PRACTICE

One-fifth of the light switches produced by a certain factory are defective. Four-fifths of the defective switches are rejected and 1/20 of the nondefective switches are rejected by mistake. If all the switches not rejected are sold, what percent of the switches sold by the factory are defective?

A. 4%

B. 5%

C. 6.25%

D. 11%

E. 16%

- 组合 (Combination)：

$$C_m^n = \frac{m!}{n!(m-n)!}$$

$$C_m^n = C_m^{m-n}$$

- 排列 (Permutation)：

$$P_n^n = n!$$

$$P_m^n = C_m^n \bullet P_n^n = \frac{m!}{(m-n)!}$$

$$P_m^1 = C_m^1 = m$$

A?? C??

排列组合

DATA ANALYSIS PRACTICE

晚会上有5个不同的唱歌节目和3个不同的舞蹈节目, 问:

分别按以下要求各可以排出几种不同的节目单?

(1) 3个舞蹈节目排在一起 4320

(2) 3个舞蹈节目彼此隔开 14400

(3) 3个舞蹈节目先后顺序一定 6720

DATA ANALYSIS PRACTICE

In a meeting of 3 representatives from each of 6 different companies, each person shook hands with every person not from his or her own company. If the representatives did not shake hands with people from their own company, how many handshakes took place?

A. 45

B. 135

C. 144

D. 270

E. 288

DATA ANALYSIS PRACTICE

If a code word is defined to be a sequence of different letters chosen from the 10 letters A, B, C, D, E, F, G, H, I, and J, what is the ratio of the number of 5-letter code words to the number of 4-letter code words?

A. 5 to 4

B. 3 to 2

C. 2 to 1

D. 5 to 1

E. 6 to 1

目标数/总数

概率问题

DATA ANALYSIS PRACTICE

一只袋中装有5只乒乓球，其中3只白色，2只红色. 现从袋中取球2次，每次1只，取出后不再放回. 试求：

(1) 2只球都是白色的概率；3/10

(2) 2只球颜色不同的概率；3/5

(3) 至少有1只白球的概率. 9/10

DATA ANALYSIS PRACTICE

Six cards numbered from 1 to 6 are placed in an empty bowl. First one card is drawn and then put back into the bowl; then a second card is drawn. If the cards are drawn at random and if the sum of the numbers on the cards is 8, what is the probability that one of the two cards drawn is numbered 5 ?

A. 1/6

B. 1/5

C. 1/3

D. 2/5

E. 2/3

DATA ANALYSIS PRACTICE

If a certain coin is flipped, the probability that the coin will land heads is 1/2. If the coin is flipped 5 times, what is the probability that it will land heads up on the first 3 flips and not on the last 2 flips?

A. 3/5

B. 1/2

C. 1/5

D. 1/8

E. 1/32

DATA ANALYSIS PRACTICE

2把钥匙, 放到有5把钥匙的钥匙链中, 相邻的概率为多少 (分直线和环形)?

2/7，1/3

描述统计学

1. 算术平均数 (Average or Arithmetic Mean)：所有数据之和除以数据个数.

2. 中数 (Median)：将所有数据从小到大排列，取中间的数或中间两个数的算术平均数.

3. 众数 (Mode)：一组数据中出现频率最高的数. 一组数据中可能有不止一个众数.

4. 极差 (Range)：一组数据中最大数与最小数之差.

DATA ANALYSIS PRACTICE

The 10 households on a certain street have household incomes that range from $34,000 to $150,000 and an average (arithmetic mean) household income of $60,000. If the household with the highest income and the one with the lowest income are excluded, what is the average household income for the remaining 8 households?

A. $41,600

B. $47,000

C. $52,000

D. $61,000

E. $75,000

DATA ANALYSIS PRACTICE

The least and greatest numbers in a list of 7 real numbers are 2 and 20, respectively. The median of the list is 6, and the number 3 occurs most often in the list. Which of the following could be the average of the numbers in the list?

[ ] 7

[ ] 8.5

[ ] 10

[ ] 11

[ ] 12.5

描述统计学

- 四分位数 (Quartile): 将所有数据从小到大排列，排名25%, 50%, 75%的数 (不严谨).
- 四分位距 (Interquartile Range): 第三四分位数与第一四分位数之差.
- 百分位：percentile，25th percentile = 1st quartile

DATA ANALYSIS PRACTICE

Find the three quartiles and interquartile range of the following numbers.

(1) 11, 13, 15, 17, 19, 21, 23, 25.

(2) 11, 13, 15, 17, 19, 21, 23, 25, 27.

描述统计学

- 方差 (Variance)：一组数据中每个数与算术平均数之差的平方和的算术平均数.

$$\sigma^2 = \frac{\sum (X - \mu)^2}{N}$$

σ^2 为总体方差， X 为变量， μ 为总体均值， N 为总体例数。

- 标准方差 (Standard Deviation)：方差的平方根.

DATA ANALYSIS PRACTICE

The standard deviation of four numbers a, b, c, and d is M, then the standard deviation of which of the following MUST be M ?

A. $\sqrt{a^2}$, $\sqrt{b^2}$, $\sqrt{c^2}$, $\sqrt{d^2}$

B. a^2 ,b^2 ,c^2 ,d^2

C. 2a,2b,2c,2d

D. a + 2,b + 2,c + 2,d + 2

E. a + 2,b – 2,c + 2,d – 2

GRE QUANTITATIVE

Test	Steven's Score	Mean Score	Standard Deviation
Math	80	88	4
Biology	90	84	2
Physics	96	86	5
History	89	81	4
Chemistry	88	85	3

The chart above shows data for five tests that Steven took. On which of the five tests did she score highest relative to the rest of the test takers?

A. math

B. biology

C. physics

D. history

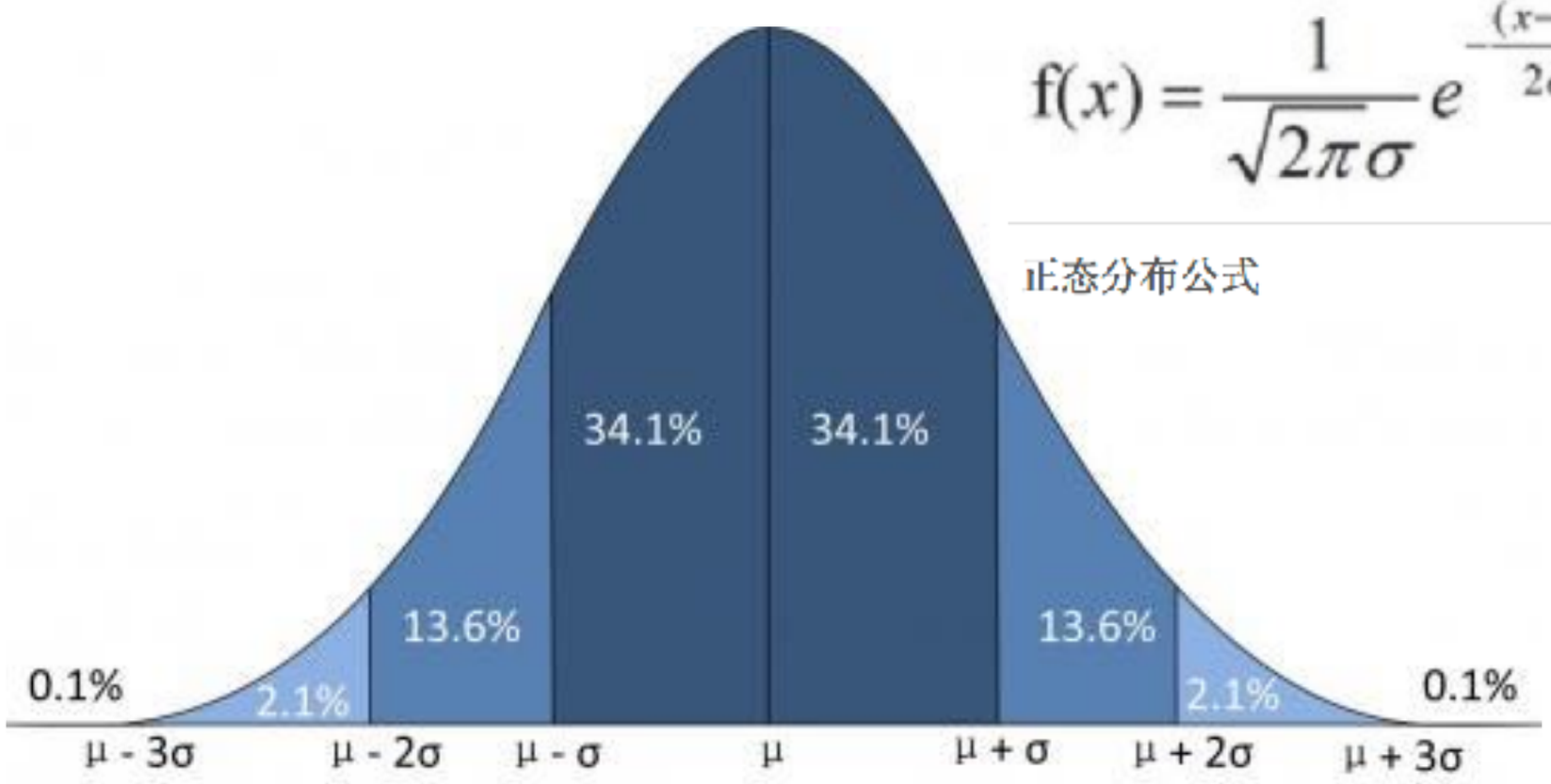
E. chemistry

正态分布 NORMAL DISTRIBUTION

若 $X \sim N(\mu,\sigma^2), Y = \frac{X-\mu}{\sigma} \sim N(0,1)$

$$f(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{\frac{(x-\mu)^2}{2\sigma^2}}$$

正态分布公式



- 已知：

1. 平均数

2. 标准方差

- 记住：

1. 平均数正负一个标准方差之间——68%

2. 平均数正负两个标准方差之间——96%

正态分布 NORMAL DISTRIBUTION

Suppose the weights of a population of 1,000 apples from a certain district are approximately normally distributed with a mean of 9 ounces and a standard deviation of 1.5 ounces.

Approximately how many of the apples are between 7.5 ounces and 12 ounces weight?

820

DATA ANALYSIS考点

- 利息问题
- 集合问题（文氏图法&表格法）
- 排列组合问题
- 概率问题
- 描述统计学

比较大小题

NUMERIC COMPARISON

GRE数学题型分布(ONE SECTION)

- 填空： 1-2个
- 不定项选择：1-2个
- 比较大小： 7-9个
- 普通单选： 其余题目

比较大小题

- 固定选项

Compare Quantity A and Quantity B, using additional information centered above the two quantities if such information is given. Select one of the following four answer choices and fill in the corresponding oval to the right of the question.

Ⓐ Quantity A is greater.
Ⓑ Quantity B is greater.
Ⓒ The two quantities are equal.
Ⓓ The relationship cannot be determined from the information given.

A symbol that appears more than once in a question has the same meaning throughout the question.

- 大于等于和小于等于选哪个?

比较大小题

A. The number of minutes in 24 hours

B. The number of seconds in 24 minutes

C

比较大小题

A. Twice as much as 4

B. 2 subtracted from 10

C

比较大小题

A. The value of the units digit in 7^{52}

B. The value of the units digit in 6^{52}

B

比较大小题

P is a positive integer.

A. The remainder when 3p + 5 is divided by 3

B. The remainder when 7p + 8 is divided by 7

A

比较大小题

The median of 10, 15, x and y is 18.5, and x < y.

A. x

B. 22

C

比较大小题

A. The number of integers between 15 and 51 that are square of integers

B. The number of integers between 6 and 126 that are cube of integers

C

比较大小题

1<n<5, n is an integer

A. The sum of the first n odd integers that are greater than zero；

B. $n^2 - 1$

A

比较大小题

A. The number of 0.25-inch lengths in a 4-inch length;

B. 1

A

比较大小题

Two successive discounts of 20 percent and 40 percent are equivalent to a single discount of x percent.

A. x

B. 52

C

比较大小题

Ms. Smith got an 8 percent salary raise of $20 per week.

A. Ms. Smith’s new weekly salary;

B. $260

A

数学小10G：
GRE QUANTITATIVE REASONING
3 PRACTICE SETS (PDF)

HOMEWORK

LESSON THREE

BY WILL

GMAT QUANTITATIVE

GRE数学机经

2018年GRE数学机经

In a probability experiment, G and H are independent events. The probability that G will occur is r, and the probability that H will occur is s, where both r and s are greater than 0.

Quantity A： the probability that either G will occur or H will occur, but not both

Quantity B： r+s-r*s

B

2018年GRE数学机经

The area of circle W is 16π and the area of circle Z is 4π. What is the ratio of the circumference of W to the circumference of Z?

A. 2 to 1

B. 4 to 1

C. 8 to 1

D. 16 to 1

E. 32 to 1

2018年GRE数学机经

The interior dimensions of a rectangular tank are as follows: length 110 centimeters, width 90 centimeters, and height 270 centimeters. The tank rests on level ground. Based on the assumption that the volume of water increases by 10 percent when it freezes, which of the following is closest to the maximum height, in centimeters, to which the tank can be filled with water so that when the water freezes, the ice would not rise above the top of the tank?

A. 230

B. 235

C. 240

D. 245

E. 250

2018年GRE数学机经

In a certain sequence of numbers, each term after the first term is found by multiplying the preceding term by 2 and then subtracting 3 from the product. If the 4th term in the sequence is 19, which of the following numbers are in the sequence? Indicate all such numbers.

[ ] 5

[ ] 8

[ ] 11

[ ] 16

[ ] 35

2018年GRE数学机经

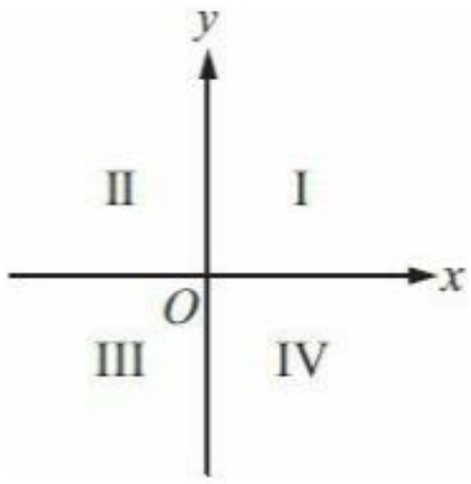
The quadrants of the xy-plane are shown in the figure above. In the xy-plane, line m (not shown) has a positive slope and a positive x-intercept. Line m intersects which of the quadrants? Indicate all such quadrants

[ ] Quadrant I

[ ] Quadrant II

[ ] Quadrant III

[ ] Quadrant IV



2018年GRE数学机经

Points R, S, and T lie on a number line, where S is between R and T. The distance between R and S is 6, and the distance between R and T is 15.

Quantity A：the distance between the midpoints of lines segments RS and ST

Quantity B：the distance between S and T

B

2018年GRE数学机经

x, y, and z are the lengths of the sides of a triangle.

Quantity A：x+y+z

Quantity B：2*z

A

2018年GRE数学机经

Rectangle R has length 30 and width 10, and square S has length 5. The perimeter of S is what fraction of the perimeter of R ?

___/___

20/80

2018年GRE数学机经

1, –3, 4, 1, –3, 4, 1, –3, 4,..

In the sequence above, the first 3 terms repeat without end. What is the sum of the terms of the sequence from the 150th term to the 154th term?

7

2018年GRE数学机经

For which of the following bird species is the standard deviation of the numbers of sightings shown for the four seasons least

A. Cardinal

B. Junco

C. Robin

D. Sparrow

E. Wren

SIGHTINGS OF SELECTED BIRD SPECIES IN PARK *H* IN 1999, BY SEASON

Species	Number of Sightings			
	Winter	Spring	Summer	Fall
Cardinal	30	18	11	20
Goldfinch	6	12	6	9
Junco	12	0	0	6
Nuthatch	8	2	0	4
Robin	6	12	28	18
Sparrow	20	19	23	22
Wren	0	18	30	12

2018年GRE数学机经

Which of the following operations carried out on both the numerator and the denominator of a fraction will always produce an equivalent fraction? Indicate all such operations

[ ] Adding 2

[ ] Multiplying by 5

[ ] Dividing by 100

2018年GRE数学机经

In a certain medical group, Dr. Schwartz schedules appointments to begin 30 minutes apart, Dr. Ramirez schedules appointments to begin 25 minutes apart, and Dr. Wu schedules appointments to begin 50 minutes apart. All three doctors schedule their first appointments to begin at 8:00 in the morning, which are followed by their successive appointments throughout the day without breaks. Other than at 8:00 in the morning, at what times before 1:30 in the afternoon do all three doctors schedule their appointments to begin at the same time? Indicate all such times

[ ] 9:30 in the morning

[ ] 10:30 in the morning

[ ] 11:30 in the morning

[ ] 12:00 noon

[ ] 1:00 in the afternoon

2018年GRE数学机经

Set A has 50 members and set B has 53 members. At least 2 of the members in set A are not in set B. Which of the following could be the number of members in set B that are not in set A ? Indicate all such numbers.

[ ] 53

[ ] 5

[ ] 13

[ ] 25

[ ] 50

2018年GRE数学机经

What is the area of triangle ABC shown above?

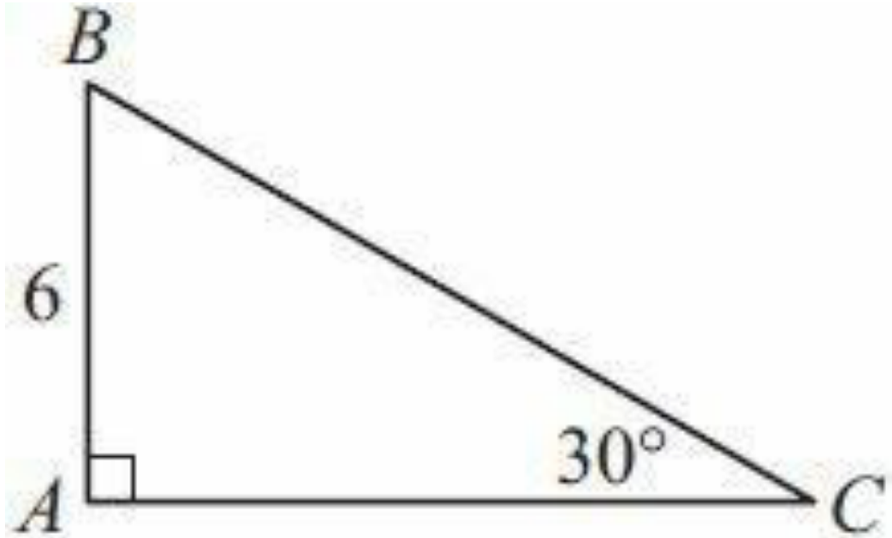
A. 18

B. 20

C. $12\sqrt{3}$

<u>D. $18\sqrt{3}$</u>

E. 36



2018年GRE数学机经

Quantity A：the sum of the first 7 positive integers

Quantity B：7 times the median of the first 7 positive integers

C

2018年GRE数学机经

The roots of the equation $x^2 - x - 6 = 0$ are

A, 1 and - 5

B. 2 and - 3

C. 3 and - 2

D. 5 and - 1

E. none of the above

2018年GRE数学机经

Quantity A：The least prime number greater than 24

Quantity B：The greatest prime number less than 28

A

2018年GRE数学机经

Quantity A：54% of 360

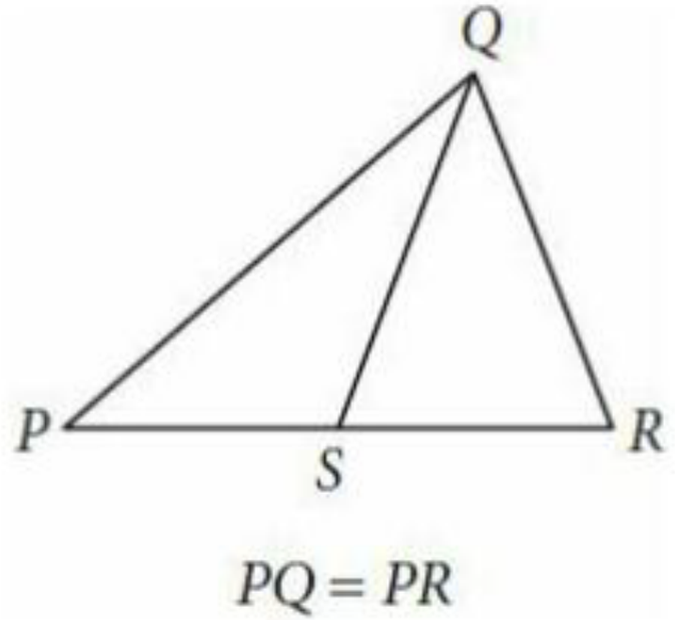
Quantity B：150

A

2018年GRE数学机经

Quantity A：PS

Quantity B：SR



$PQ = PR$

D

2018年GRE数学机经

A merchant made a profit of $5 on the sale of a sweater that cost the merchant $15. What is the profit expressed as a percent of the merchant's cost? Give your answer to the nearest whole percent.

33%

2018年GRE数学机经

A box contains 100 balls, numbered from 1 to 100. If three balls are selected at random and with replacement from the box, what is the probability that the sum of the three numbers on the balls selected from the box will be odd?

A. 1/4

B. 3/8

C. 1/2

D. 5/8

E. 3/4

2018年GRE数学机经

There are 1200 respondents to a poll, each favoring their preference for candidates A,B, and C. 54% favored A, 48% favored B, and 42% favored C, and there is 30% favored both A and B. What's the largest possible number of respondents favoring C, but not C&B, nor C&A?

A. 25%

B. 30%

C. 28%

D. 38%

E. 40%

2018年GRE数学机经

In an insurance company, each policy has a paper record and an electric record. For those policies having incorrect paper record, 60% also having incorrect electric record; For policies having incorrect electric record, 75% also having incorrect paper record.3% of all policies have both incorrect paper and incorrect electric records. If we randomly pick out one policy, what's the probability that the one having both correct paper and correct electric records?

A. 0.80

B. 0.94

C. 0.75

D. 0.88

E. 0.92

2018年GRE数学机经

If Bob can do a job in 20 days and Jane can do the job in 30 days, they work together to do this job and in this period, Bob stop work for 2.5 days and Jane stop work for x days, and the job be finished for 14 days, what is x?

A. 1.6

B. 3.2

C. 1.5

D. 1.25

E. 1.15

2018年GRE数学机经

The probability of A is 60% and the probability of B is 50%, what is the most possible probability that neither A nor B would happen?

A. 0.80

B. 0.40

C. 0.75

D. 0.55

E. 0.68

2018年GRE数学机经

Each week a salesperson receives a commission that is equal to 12 percent of the first $500 of sales plus 20 percent of additional sales. If the salesperson received a commission of $380 last week, what was the total amount of the sales that the salesperson made last week?

A. $1,600

B. $1,660

C. $1,860

D. $2,000

E. $2,100

2018年GRE数学机经

已知$x \neq 0$,

Quantity A: x^2

Quantity B: x(x+5)

D

2018年GRE数学机经

If x< y, which of the following must be true?

A. 2x< y

B. 2x> y

C. $x^2 < y^2$

<u>D. 2x-y< y</u>

E. 2x-y< 2xy

2018年GRE数学机经

The table shows the frequency distribution of the random variable X. What is the median of the distribution of the Value X?

X	Frequency
0	6
1	11
2	18
3	23
4	15

3

2018年GRE数学机经

According to a tax rate formula for a certain year, the amount of tax owed by an individual whose annual income was between $31,850 and $77,100 was equal to a base tax of $4,386 plus 24 percent of the annual income that exceeded $31,850.

According to this formula, what was the amount of tax owed by an individual whose annual income that year was $42,000?

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《GRE数学快速高分突破》考前冲刺120题

HOMEWORK

YOU ARE A CHINESE, GO GET YOURSELF A 170 !

Thanks.

By Will