

Level 5

原版引进，英语能力自我挑战

快乐学数学，美式学习场景全体验

双语学习，更可助你迈出出国留学第一步

5 级

美国原版青少年核心能力拓展

好玩的数学

Targeted Mathematics Student Guided Practice Book

主 编：〔美〕莎拉·约翰逊



天津出版传媒集团

天津科技翻译出版有限公司

Level 5

5 级

美国原版青少年核心能力拓展

好玩的数学

Targeted Mathematics Student Guided Practice Book

主 编：〔美〕莎拉·约翰逊



天津出版传媒集团

◆ 天津科技翻译出版有限公司

著作权合同登记号:图字:02-2013-308

图书在版编目(CIP)数据

美国原版青少年核心能力拓展:好玩的数学=Targeted mathematics: student guided practice book. 5级:英文/(美)约翰逊(Johnson, S.)主编. —天津:天津科技翻译出版有限公司, 2014.4

ISBN 978-7-5433-3346-8

I. ①美… II. ①约… III. ①数学—少儿读物 ②英语—口语—少儿读物
IV. ①O1-49 ②H319.9-49

中国版本图书馆 CIP 数据核字 (2013) 第 320401 号

Copyright © 2013 by Teacher Created Materials, Inc.

All rights reserved. No part of this book may be used or reproduced in any manner whatsoever without the written permission of the Publisher.

授权单位: Teacher Created Materials, Inc.

出版: 天津科技翻译出版有限公司

出版人: 刘庆

地址: 天津市南开区白堤路 244 号

邮政编码: 300192

电话: 022-87894896

传真: 022-87893237

网址: www.tsttpc.com

印刷: 唐山天意印刷有限责任公司

发行: 全国新华书店

版本记录: 880×1230 16 开本 10.5 印张 210 千字

2014 年 4 月第 1 版 2014 年 4 月第 1 次印刷

定价: 25.00 元

(如发现印装问题, 可与出版社调换)

编者前言

《美国原版青少年核心能力拓展:好玩的数学》(学前阶段及1~8级)是从美国教师创新教材出版公司(Teacher Created Materials Inc.)引进的现行介入式数学指南,全面反映了美国学前班至八年级数学课的现行教学内容及教学要求,同时也为我们展示了美国青少年丰富多彩、生动活泼的学习场景。

阅读使用这套丛书会让你有一种犹如在美国上学、与美国的小朋友同步学习的亲身体验。从中不仅可以了解美国学生在数学课上学些什么,做些什么样的作业,考些什么样的数学题;还可以知道他们的老师在课堂上讲些什么,以及对学生的要求是什么。由此你会发现,他们的数学课与我们的有相同之处,但也并非完全相同。我们侧重于背公式,做习题,备考应试;而他们侧重于理解和掌握数学的基础知识,既讲述初等数学的内容,又介绍了一些高等数学、数论、概率论、统计学的知识,并与其他学科相互联系,从而了解数学在其他学科中的应用,而且在教学中注意联系实际,注重实践应用,因此上数学课不会让学生感到枯燥乏味,而是感觉生动有趣。二者有着不同的教学理念和方式,如果能通过这套丛书的学习将二者有机地结合起来,取长补短,优势互补,必能开阔你的眼界,提高你对数学概念的理解,提升你的应用能力(当然也包括应试能力)。

数学是世界各地通用的一门学科,有着共同的概念、公式、术语、习题、计算方法,因此在这套书中有着非常熟悉的学习内容和知识背景:学过的数学知识,做过的数学习题,考过的数学试题。特别之处在于这套丛书以英文原版形式体现,这就为你营造了一个在熟悉的背景下学习英语的环境,学会用地道的英语来表达学过的知识,表达真实的日常生活和学习活动,学会用英语和同学进行学习互动,从而大幅度提高你的英语水平。既学了数学又学了英语(而且是非常实用的英语),岂非两全其美的好事。

这套丛书适用于我国广大青少年读者,尤其是双语学校的学生以及打算到英语国家上高中、上大学的学生。学习这套丛书,就等于在国内体验了国外的学校生活,这对今后的深造无疑是大有裨益的。

打开书本,开启你在国内“留学”的全新生活吧!

英语就得天天练——阅读美国孩子的课余英文原版书

好玩的数学——体验美国青少年数学学习的乐趣

Table of Contents

Student Welcome Letter	1	Lesson 9	Fraction Wall	38
Diagnostic Test	2		Adding and Subtracting Fractions	39
Lesson 1			The Popularity of Pizza	40
Place Value Grid	7		Standardized Test Preparation 9	42
Guessing and Checking	8	Lesson 10	Simply Fractions	43
Standardized Test Preparation 1	9		Creating a Table Group Problems	44
Lesson 2			Standardized Test Preparation 10	45
Use It!	10	Lesson 11	Improper Fractions	46
School Uniforms	11		Looking for a Pattern	47
Standardized Test Preparation 2	13		Standardized Test Preparation 11	48
Lesson 3		Lesson 12	On and On	49
Methods of Dividing	14		Going to the Movies	50
Guessing and Checking Problems	15		Standardized Test Preparation 12	52
Standardized Test Preparation 3	16	Lesson 13	Exploring Algebraic Expressions and Equations	53
Lesson 4			Looking for a Pattern Problems	54
At the Fair	17		Standardized Test Preparation 13	55
Pony Express	19	Lesson 14	Variables and Equations	56
Standardized Test Preparation 4	21		Celebrating a Mexican Holiday	58
Lesson 5			Standardized Test Preparation 14	60
In the Balance	22	Lesson 15	How Long Does It Take?	61
Decimal Cards	23		Looking for a Pattern Group Problems	62
Guessing and Checking Group Problems	25		Standardized Test Preparation 15	63
Standardized Test Preparation 5	26	Lesson 16	How Much? How Far? How Long?	64
Lesson 6			Drawing a Diagram	65
Code Wheels	27		Standardized Test Preparation 16	66
Creating a Table	28	Lesson 17	Tiles	67
Standardized Test Preparation 6	29		The Summer Olympics	69
Lesson 7			Standardized Test Preparation 17	71
It's a Fact!	30			
Chad's Movie Rental Store	31			
Standardized Test Preparation 7	33			
Lesson 8				
Hundred Chart	34			
The Sieve of Eratosthenes	35			
Creating a Table Problems	36			
Standardized Test Preparation 8	37			

目 录

欢迎信	1
摸底测试	2
Lesson 1	
位值表格	7
估算与验算	8
标准考前测试 1	9
Lesson 2	
分解运算	10
校服	11
标准考前测试 2	13
Lesson 3	
除法	14
估算与验算 练习	15
标准考前测试 3	16
Lesson 4	
在游乐场	17
快马邮递	19
标准考前测试 4	21
Lesson 5	
找位置	22
小数卡	23
估算与验算 练习	25
标准考前测试 5	26
Lesson 6	
代码转盘	27
制图表	28
标准考前测试 6	29
Lesson 7	
这才是真相!	30
查德的影碟出租店	31
标准考前测试 7	33
Lesson 8	
百位数表	34
爱拉托逊斯筛法	35
制图表 练习	36
标准考前测试 8	37

Lesson 9	
分数墙	38
分数加减法	39
比萨的普及	40
标准考前测试 9	42
Lesson 10	
约分	43
制图表 分组练习	44
标准考前测试 10	45
Lesson 11	
假分数	46
找规律	47
标准考前测试 11	48
Lesson 12	
接下去!	49
去看电影	50
标准考前测试 12	52
Lesson 13	
探索代数表达式和方程式	53
找规律 练习	54
标准考前测试 13	55
Lesson 14	
变量和方程	56
欢度墨西哥节日	58
标准考前测试 14	60
Lesson 15	
需要多久呢?	61
找规律 分组练习	62
标准考前测试 15	63
Lesson 16	
有多少? 有多远? 有多长?	64
绘制图表	65
标准考前测试 16	66
Lesson 17	
拼方块	67
夏季奥运会	69
标准考前测试 17	71

Table of Contents

Lesson 18

Area According to Units.....	72
<i>Drawing a Diagram</i> Problems.....	73
Standardized Test Preparation 18.....	74

Lesson 19

Fill It Up	75
The Tallest Mountains in the United States ..	76
Standardized Test Preparation 19.....	78

Lesson 20

Name Coordinates.....	79
<i>Drawing a Diagram</i> Group Problems.....	80
Standardized Test Preparation 20.....	81

Lesson 21

Parallel and Perpendicular.....	82
Space to the Right	83
Acting It Out or Using Concrete Materials ...	84
Standardized Test Preparation 21.....	85

Lesson 22

Shape Configurations	86
Similar and Congruent Shapes.....	87
Liquids.....	89
Standardized Test Preparation 22.....	91

Lesson 23

<i>Acting It Out or Using Concrete Materials</i> Problems	92
Grids and Shapes.....	93
Shape Coordinates Recording Sheet	95
Standardized Test Preparation 23.....	97

Lesson 24

Venn Diagram	98
The Box Factory.....	99
Standardized Test Preparation 24.....	101

Lesson 25

Freshtown	102
Properties Problems.....	103
<i>Acting It Out or Using Concrete Materials</i> Group Problems	104
Standardized Test Preparation 25.....	105

Lesson 26

Investigate It	106
Using Simpler Numbers.....	107
Standardized Test Preparation 26.....	108

Lesson 27

Shape Cards	109
Probability of Shapes.....	111
What Does an Architect Do?	112
Standardized Test Preparation 27.....	114

Lesson 28

Marble Graph.....	115
<i>Using Simpler Numbers</i> Problems.....	117
Standardized Test Preparation 28.....	118

Lesson 29

Endangered Species	119
Endangered Reptiles	120
The Floors Under Your Feet	122
Standardized Test Preparation 29.....	124

Lesson 30

Flipping Coins	125
Will It or Won't It?	127
<i>Using Simpler Numbers</i> Group Problems....	129
Standardized Test Preparation 30.....	130

Appendix A: Games Directions

Appendix B: Mathematics Chart.....

Appendix C: Glossary

Appendix D: Answer Key.....

目 录

Lesson 18

根据单位计算面积.....	72
绘制图表 练习	73
标准考前测试 18.....	74

Lesson 19

填一填.....	75
美国最高的山	76
标准考前测试 19.....	78

Lesson 20

姓名坐标	79
绘制图表 分组练习	80
标准考前测试 20.....	81

Lesson 21

平行和垂直.....	82
填写右侧坐标.....	83
演示或用小玩具解题	84
标准考前测试 21.....	85

Lesson 22

图形组合	86
相似图形和全等图形	87
液体	89
标准考前测试 22.....	91

Lesson 23

演示或用小玩具解题 练习	92
网格和图形.....	93
图形坐标记录单.....	95
标准考前测试 23.....	97

Lesson 24

维恩图.....	98
纸盒工厂	99
标准考前测试 24.....	101

Lesson 25

新兴小镇	102
描述特性 练习	103
演示或使用小玩具解题 分组练习	104
标准考前测试 25.....	105

Lesson 26

测一测.....	106
化简数字 解题	107
标准考前测试 26.....	108

Lesson 27

图形卡.....	109
图形抽中的概率.....	111
建筑师是做什么的?	112
标准考前测试 27.....	114

Lesson 28

弹珠图表	115
化简数字解题 练习	117
标准考前测试 28.....	118

Lesson 29

濒临灭绝的物种.....	119
濒临灭绝的爬行动物	120
你脚下的地板.....	122
标准考前测试 29.....	124

Lesson 30

抛硬币	125
会还是不会?	127
化简数字解题 分组练习	129
标准考前测试 30.....	130

附录A: 游戏指南..... 131

附录B: 数学用表..... 139

附录C: 词汇表..... 142

附录D: 参考答案..... 149

Student Welcome Letter

欢迎信

Dear Student,

You are starting a math program that will help you review fifth grade. Up to this point in school, you have learned many mathematical skills. This program will help you focus on what you already know how to do in math and what you need to learn. You will learn the important mathematical concepts, skills, and vocabulary so that you are ready for sixth grade.

Sometimes students have trouble learning math. It can seem confusing. This program will help you practice math every day. You will review many things you learned in fourth grade. Some of those things include probability, fractions, and problem solving.

Please sign the bottom of this letter and keep it as a reminder of the skills you learned in this math program. Have fun!

Student Signature (学生签名)

Diagnostic Test

摸底测试

- 1** What is the written expression (书面表达) for $16,342 + 127$?
- (A) sixteen thousand, four hundred sixty-nine
- (B) sixteen thousand, four hundred seventy-nine
- (C) fifteen thousand, five hundred sixty-nine
- (D) fourteen thousand, four hundred sixty-nine
- 2** Which of these answers shows how to break down (分解) 22×6 into math facts (数学式) you know?
- (F) $(10 \times 6) - (10 \times 2)$
- (G) $(6 \times 10) + (6 \times 10)$
- (H) $(6 \times 20) + (6 \times 2)$
- (J) $(11 \times 6) + (12 \times 6)$
- 3** Use any division method to find the quotient (商).
- $$8 \overline{)967}$$
- (A) 121 R7 (余7)
- (B) 120 R7
- (C) 140 R7
- (D) 121 R6
- 4** Irma bought a pair of tennis shoes (网球鞋) for \$39.65 and a pair of boots (靴子) for \$51.39. How much did she spend in all?
- (F) \$91.04
- (G) \$101.05
- (H) \$92.05
- (J) \$89.04
- 5** Which of the following has the least value?
- (A) 0.243
- (B) 0.21
- (C) 0.198
- (D) 0.3
- 6** Choose the correct answer.
- $\$0.80 \times 1,000 = \underline{\hspace{2cm}}$
- (F) \$8.00
- (G) \$800
- (H) \$80.00
- (J) \$8,000

Diagnostic Test (cont.)

- 7** Which of these answers lists all of the factors of 8?

(A) 2, 4, 8
(B) 2, 4
(C) 2, 4, 6, 8
(D) 1, 2, 4, 8

- 10** Simplify (约分) the fraction below:

$\frac{18}{81}$
(F) $\frac{9}{40}$
(G) $\frac{1}{4}$
(H) $\frac{3}{13}$
(J) $\frac{2}{9}$

- 8** Alex added two prime numbers (质数). The sum (和) was an odd number (奇数). Which of these numbers had to be one of the prime numbers?

(F) 2
(G) 3
(H) 5
(J) 7

- 11** Kevin walked $\frac{25}{8}$ miles (英里). Simplify the improper fraction (可约分数).

(A) $\frac{12}{4}$ miles (C) $2\frac{10}{8}$ miles
(B) 3 miles (D) $3\frac{1}{8}$ miles

*为体现原版书的特色,书中出现的计量单位在不影响解题思路的情况下均保持原貌,个别在我国不常用的计量单位已做换算标注。计量单位换算可参见附录B: 数学用表。

- 9** Nihal and Monique went to Pizza Place. Nihal ate $\frac{4}{8}$ of the pizza. Monique ate $\frac{2}{8}$ of the pizza. How much pizza did they eat?

(A) $\frac{2}{8}$
(B) $\frac{1}{8}$
(C) $\frac{6}{8}$
(D) $\frac{7}{8}$

- 12** Determine the next two numbers in this sequence.

4, 9, 15, 22, 30, _____, _____
(F) 35, 41
(G) 38, 46
(H) 37, 45
(J) 39, 49

Diagnostic Test *(cont.)*

- 13** The length of a poster (海报) is 3 feet. The area is 21 feet squared (平方英尺). Which equation best represents the width (宽) of the poster?

(A) $21 \cdot w = 3$
(B) $3 \cdot w = 21$
(C) $w \div 3 = 21$
(D) $21 \cdot 3 = w$

- 16** What is the best estimate for the length of a crayon (蜡笔)?

(F) 3 inches
(G) 3 centimeters
(H) 3 millimeters
(J) 3 feet

*本题单位换算参见附录B: 数学用表。

- 14** Marco and his family drove 340 miles on their vacation (假期). They stopped after 150 miles to see the Grand Canyon (科罗拉多大峡谷). Which equation best represents the number of miles they traveled after that stop?

(F) $150 \times m = 340$
(G) $340 \div m = 150$
(H) $m - 150 = 340$
(J) $150 + m = 340$

- 17** What is the perimeter of a square eraser (橡皮) that is 5.6 cm long on each side?

(A) 22.2 cm
(B) 20.24 cm
(C) 22.4 cm
(D) 11.2 cm

- 15** What is the perimeter (周长) of a figure with these 4 sides: 3 cm, 5 cm, 7 cm, 4 cm?

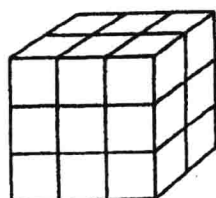
(A) 23 cm
(B) 15 cm
(C) 19 cm
(D) 16 cm

- 18** Compute the area of a desk that is 12 ft. long and 13 ft. wide.

(F) 154 ft.^2
(G) 25 ft.^2
(H) 50 ft.^2
(J) 156 ft.^2

Diagnostic Test (cont.)

- 19** What is the volume (体积) of the shape?



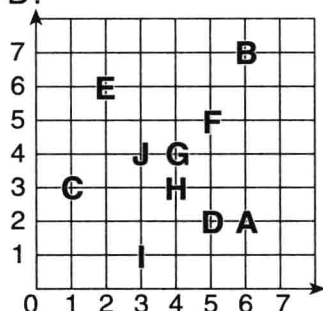
- (A) 18 units squared (正方形)
- (B) 16 units cubed (正方体)
- (C) 18 units cubed
- (D) 16 units squared

- 22** These shapes are _____.



- (F) right triangle (直角三角形)
- (G) congruent (全等三角形)
- (H) similar (相似三角形)
- (J) quadrilaterals (四边形)

- 20** What are the coordinates (坐标) for point B?



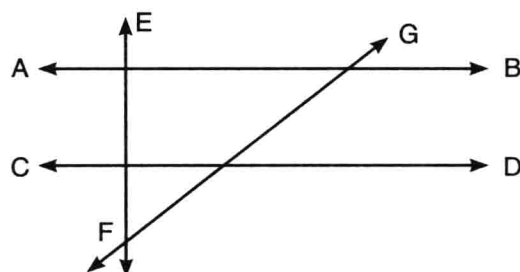
- (F) (7, 6)
- (G) (6, 7)
- (H) (6, 6)
- (J) (7, 5)

- 23** This shows an example of a _____.



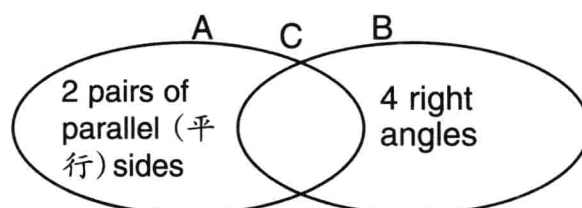
- (A) reflection (反射)
- (B) flip (翻转)
- (C) rotation (旋转)
- (D) translation (平移)

- 21** Which two lines are parallel (平行)?



- (A) \overleftrightarrow{AB} and \overleftrightarrow{EF}
- (B) \overleftrightarrow{EF} and \overleftrightarrow{CD}
- (C) \overleftrightarrow{AB} and \overleftrightarrow{CD}
- (D) None

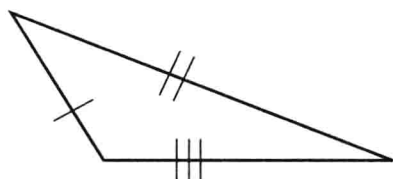
- 24** Which shape fits in (适应) area C of the Venn diagram (维恩图)?



- (F) rectangle (矩形)
- (H) triangle (三角形)
- (G) rhombus (菱形)
- (J) trapezoid (梯形)

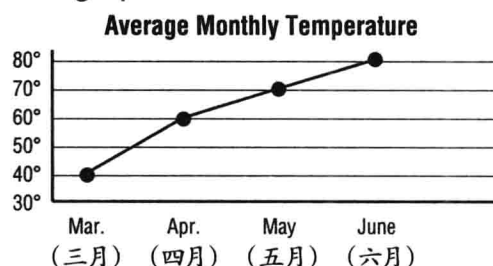
Diagnostic Test (cont.)

- 25** What type of triangle is this?



- (A) equilateral (等边)
 (B) acute (锐角)
 (C) right (直角)
 (D) scalene (不等边)

- 28** What was the average (平均) monthly temperature for March shown on the line graph?

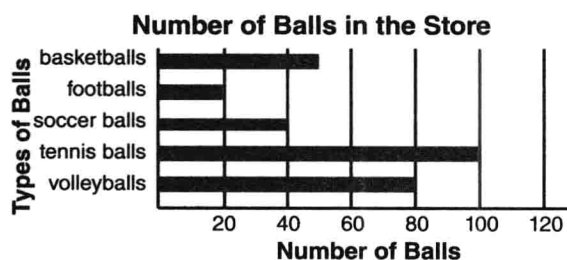


- (F) 30° (H) 40°
 (G) 35° (J) 45°

- 26** Mike recorded these heights in inches for 10 of his classmates: 60, 45, 52, 54, 53, 60, 57, 56, 57, 60. Which is the mode (众数)?

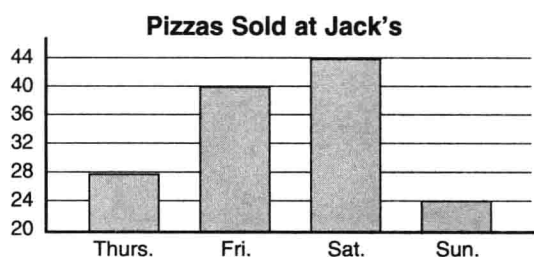
- (F) 60
 (G) 57
 (H) 56
 (J) 45

- 29** There are more soccer balls (足球) than ____.



- (A) footballs (橄榄球) (C) basketballs (篮球)
 (B) volleyballs (排球) (D) tennis balls (网球)

- 27** How many pizzas did Jack's sell on Friday?



- (A) 28 pizzas (C) 24 pizzas
 (B) 40 pizzas (D) 44 pizzas

- 30** Choose the best category (范畴) for this statement: *You will breathe air in the next five minutes.*

- (F) Impossible (不可能)
 (G) Unlikely (不太可能)
 (H) Likely (很可能)
 (J) Certain (必然)

Lesson 1

Place Value Grid
位值表格

Directions: Write numbers in the grid (格子) below. Place the digits (数字) in the correct columns (列) and then identify what each digit represents. For example: 2,653 = 2 thousands, 6 hundreds, 5 tens, and 3 ones.

	Ten Thousands (万)	Thousands (千)	Hundreds (百)	Tens (十)	Ones (一)
1.					
2.					
3.					
4.					
5.					
6.					

Directions: On the lines below, write each of the above numbers in words. (For example: 2,653 = two thousand, six hundred fifty-three.)

1.

2.

3.

4.

5.

6.

Guessing and Checking

估算与验算

Guessing and checking can be used to solve a variety of problems. Begin with an educated (有根据的) guess, a guess based on information you already know, or ideas that make sense. Don't make a wild guess. Always base your first guess on important facts.

Check your guess against the facts and information in the problem. If your guess is wrong, change it according to whether it is too small or too large. Check your answer again. Repeat these steps until you find the solution.

Learning how to make reasonable guesses takes practice. Creating a table will help you keep track of your guesses and results until you find the correct solution.

Noting the Important Facts

Begin by looking for the important facts in the problem and determining what you need to solve.

Problem: Sticker Fun! (贴纸游戏)

The Problem

Mr. Collins handed out (分发) 45 reward (奖励) stickers to his class over a five-day period. Each day, he handed out three more stickers than the day before.

How many stickers did Mr. Collins give to his students each day?

Understanding the Problem

- *What do we know?*
The total number of stickers is 45.
The stickers were handed out over a five-day period. Each day, more stickers are handed out.
- *What do we need to find out?*
How many stickers did Mr. Collins hand out each day?

Planning and Communicating a Solution (计划和沟通解决方案)

To make an educated guess, you need a starting point (起始点). For example, it might be useful to start with five stickers. In your table, keep track of the total stickers so that you know when the total of 45 stickers is reached. Create a table with three rows and six columns.

Guess 1

Day	1	2	3	4	5
Number of Stickers	5	8	11	14	17
Total	5	13	24	38	55

This first guess is too high because there are 55 total after 5 days. Start with a lower number of stickers for the next guess.

Guess 2

Day	1	2	3	4	5
Number of Stickers	2	5	8	11	14
Total	2	7	15	26	40

The total is too low. For guess 3, start with a number between 2 and 5.

Guess 3

Day	1	2	3	4	5
Number of Stickers	3	6	9	12	15
Total	3	9	18	30	45

- *Do you see the answer?*

Guess 3 is correct. Mr. Collins handed out 3 stickers the first day, 6 on the second day, 9 on the third day, 12 on the fourth day, and 15 on the fifth day.

Reflecting and Generalizing (指导和概括)

Could the problem have been solved any other way?

Extension

If Mr. Collins continued this pattern the next week, how many stickers did he give out by the ninth day?

Standardized Test Preparation 1

标准考前测试 1

- | | |
|--|--|
| <p>1 Which number means eight ten thousands, seven thousands, five hundreds, six tens, and nine ones?</p> <p>(A) 8,756</p> <p>(B) 87,659</p> <p>(C) 875,609</p> <p>(D) 87,569</p> | <p>4 Christina rode the Whirly Bird Twister, which cost \$3.75, and the Screamin' Coaster, which cost \$2.65. How much did she spend?</p> <p>(F) \$6.20</p> <p>(G) \$6.40</p> <p>(H) \$6.85</p> <p>(J) \$5.40</p> |
| <p>2 Which of these answers shows how to break down (分解) 8×19 into math facts you know?</p> <p>(F) $(8 \times 10) - (8 \times 9)$</p> <p>(G) $(8 \times 12) + (8 \times 9)$</p> <p>(H) $(8 \times 10) + (8 \times 8)$</p> <p>(J) $(8 \times 10) + (8 \times 9)$</p> | <p>5 Which of the decimals (小数) listed has the greatest value?</p> <p>(A) 0.55</p> <p>(B) 0.49</p> <p>(C) 0.2</p> <p>(D) 0.381</p> |
| <p>3 Compute to find the quotient (商).
$287 \div 9 = \underline{\hspace{2cm}}$</p> <p>(A) 33 R7</p> <p>(B) 31 R7</p> <p>(C) 32 R1</p> <p>(D) 31 R8</p> | <p>6 Pick one question from this test. Explain how and why you chose your answer.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> |