2006 AMC8

Problem 1

Mindy made three purchases for $\$1.98, \$5.04$ and $\$9.89$. What was her total, to the nearest dollar?

Mindy 买的三样东西价格分别为 $1.98，$5.04 和 $9.89。那么她所需要支付的总价最接近多少美元？

$\textbf{(A)}\ \$10 \qquad \textbf{(B)}\ \$15 \qquad \textbf{(C)}\ \$16 \qquad \textbf{(D)}\ \$17 \qquad \textbf{(E)}\ \$18$

Problem 2

On the AMC 8 contest Billy answers 13 questions correctly, answers 7 questions incorrectly and doesn't answer the last 5. What is his score?

在 AMC8 竞赛中，Billy 答对了 13 题，答错了 7 题，最后 5 题未作答，那么他的分数是多少？

$\textbf{(A)}\ 1 \qquad \textbf{(B)}\ 6 \qquad \textbf{(C)}\ 13 \qquad \textbf{(D)}\ 19 \qquad \textbf{(E)}\ 26$

Problem 3

Elisa swims laps in the pool. When she first started, she completed 10 laps in 25 minutes. Now she can finish 12 laps in 24 minutes. By how many minutes has she improved her lap time?

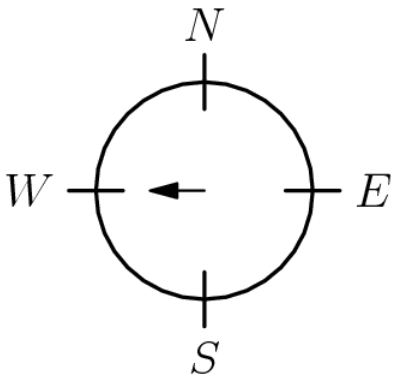
Elisa 在游泳池里游了几圈。当她第一次开始时，她在 25 分钟内完成了 10 圈。现在她可以在 24 分钟内游完 12 圈。那么她游一圈所花的时间减少了多少分钟？

$\textbf{(A)}\ \frac{1}{2} \qquad \textbf{(B)}\ \frac{3}{4} \qquad \textbf{(C)}\ 1 \qquad \textbf{(D)}\ 2 \qquad \textbf{(E)}\ 3$

Problem 4

Initially, a spinner points west. Chenille moves it clockwise $2\frac{1}{4}$ revolutions and then counterclockwise $3\frac{3}{4}$ revolutions. In what direction does the spinner point after the two moves?

最初，转盘的箭头指向西部。Chenille 将其顺时针旋转$2\frac{1}{4}$圈，然后逆时针旋转$3\frac{3}{4}$圈。那么两次转动后，箭头指向哪个方向？

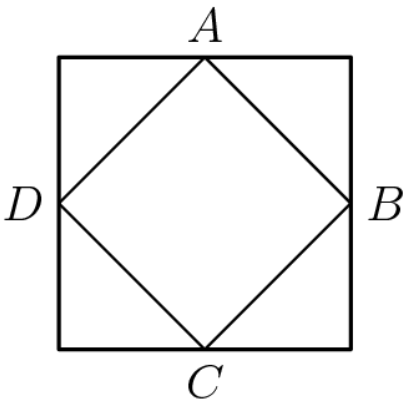


(A) north **(B)** east **(C)** south **(D)** west **(E)** northwest

Problem 5

Points A, B, C and D are midpoints of the sides of the larger square. If the larger square has area 60, what is the area of the smaller square?

点 A，B，C 和 D 是一个大正方形的各边的中点。若大正方形的面积为 60，那么小正方形的面积是多少？

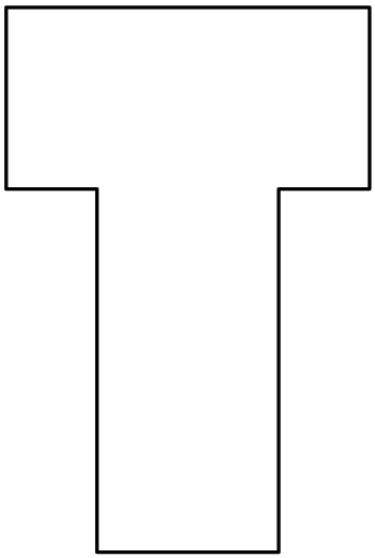


(A) 15 **(B)** 20 **(C)** 24 **(D)** 30 **(E)** 40

Problem 6

The letter T is formed by placing two 2×4 inch rectangles next to each other, as shown. What is the perimeter of the T, in inches?

将两个 2×4 英寸的矩形相邻放置，形成下图所示的 T 字形。那么这个 T 字形的周长是多少英寸？



$\textbf{(A)}\ 12 \qquad \textbf{(B)}\ 16 \qquad \textbf{(C)}\ 20 \qquad \textbf{(D)}\ 22 \qquad \textbf{(E)}\ 24$

Problem 7

Circle X has a radius of π. Circle Y has a circumference of 8π. Circle Z has an area of 9π. List the circles in order from smallest to largest radius.

圆 X 的半径是π，圆 Y 的周长是 8π。圆 Z 的面积是 9π。将这 3 个圆按照半径从小到大排序是？

$\textbf{(A)}\ X, Y, Z \qquad \textbf{(B)}\ Z, X, Y \qquad \textbf{(C)}\ Y, X, Z \qquad \textbf{(D)}\ Z, Y, X \qquad \textbf{(E)}\ X, Z, Y$

Problem 8

The table shows some of the results of a survey by radiostation KAMC. What percentage of the males surveyed listen to the station?

下表列出了广播电台 KAMC 的一项调查所得到的某些结果。被调查的男性中，收听广播的男性占比是多少？

	Listen	Don't Listen	Total
Males	?	26	?
Females	58	?	96
Total	136	64	200

(A) 39 **(B)** 48 **(C)** 52 **(D)** 55 **(E)** 75

Problem 9

What is the product of $\frac{3}{2} \times \frac{4}{3} \times \frac{5}{4} \times \cdots \times \frac{2006}{2005}$?

$\frac{3}{2} \times \frac{4}{3} \times \frac{5}{4} \times \cdots \times \frac{2006}{2005}$的乘积结果是多少？

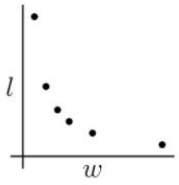
(A) 1 **(B)** 1002 **(C)** 1003 **(D)** 2005 **(E)** 2006

Problem 10

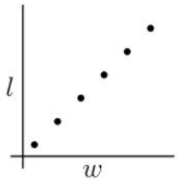
Jorge's teacher asks him to plot all the ordered pairs (w, l) of positive integers for which w is the width and l is the length of a rectangle with area 12. What should his graph look like?

Jorget 的老师要求他画出所有的（w，l）正整数对，其中 w 和 l 分别是一个面积为 12 的矩形的宽和长。则他画的图应该是下面哪个？

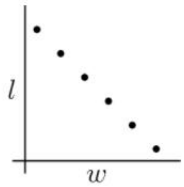
(A)



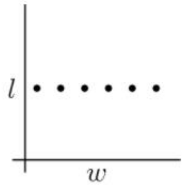
(B)



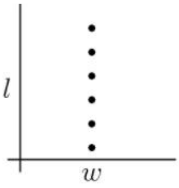
(C)



(D)



(E)



Problem 11

How many two-digit numbers have digits whose sum is a perfect square?

有多少个两位数，满足各个位上数字之和是个完全平方数？

$\textbf{(A)}\ 13 \qquad \textbf{(B)}\ 16 \qquad \textbf{(C)}\ 17 \qquad \textbf{(D)}\ 18 \qquad \textbf{(E)}\ 19$

Problem 12

Antonette gets 70% on a 10-problem test, 80% on a 20-problem test and 90% on a 30-problem test. If the three tests are combined into one 60-problem test, which percent is closest to her overall score?

Antonette 在一场 10 道题的考试中得分为 70%，在一场 20 道题的考试中得分为 80%，在一场 30 道题的考试中得分为 90%. 若这三场考试题合并成一场 60 道题的考试，那么下面哪个百分数最接近他的总分？

$\textbf{(A)}\ 40 \qquad \textbf{(B)}\ 77 \qquad \textbf{(C)}\ 80 \qquad \textbf{(D)}\ 83 \qquad \textbf{(E)}\ 87$

Problem 13

Cassie leaves Escanaba at 8:30 AM heading for Marquette on her bike. She bikes at a uniform rate of 12 miles per hour. Brian leaves Marquette at 9:00 AM heading for Escanaba on his bike. He bikes at a uniform rate of 16 miles per hour. They both bike on the same 62-mile route between Escanaba and Marquette. At what time in the morning do they meet?

Cassie 早上 8：30 离开 Escanaba，骑自行车前往 Marquette. 她以每小时 12 英里的均匀速度骑自行车。Brian 早上 9 点离开 Marquette，骑着自行车前往 Escanaba。他以每小时 16 英里的均匀速度骑自行车。他们俩骑自行车使用的都是在 Escanaba 和 Marquette 之间的同一条 62 英里长的路线。则他们早上什么时候相遇？

$\textbf{(A)}\ 10:00 \qquad \textbf{(B)}\ 10:15 \qquad \textbf{(C)}\ 10:30 \qquad \textbf{(D)}\ 11:00 \qquad \textbf{(E)}\ 11:30$

Problems 14, 15 and 16 involve Mrs. Reed's English assignment.

问题 14、15 和 16 涉及 Reed 女士的英语作业。

A Novel Assignment

The students in Mrs. Reed's English class are reading the same 760-page novel. Three friends, Alice, Bob and Chandra, are in the class. Alice reads a page in 20 seconds, Bob reads a page in 45 seconds and Chandra reads a page in 30 seconds.

小说阅读任务

Reed 女士英语课上的学生正在读同一本 760 页的小说。Alice，Bob 和 Chandra 这 3 个朋友在这个班上。Alice 读一页需要 20 秒，Bob 读一页需要 45 秒，Chandra 读一页需要 30 秒。

Problem 14

If Bob and Chandra both read the whole book, Bob will spend how many more seconds reading than Chandra?

如果 Bob 和 Chandra 都读了整本书，Bob 会比 Chandra 多读多少秒钟？

$\textbf{(A)}\ 7,600 \qquad \textbf{(B)}\ 11,400 \qquad \textbf{(C)}\ 12,500 \qquad \textbf{(D)}\ 15,200 \qquad \textbf{(E)}\ 22,800$

Problem 15

Chandra and Bob, who each have a copy of the book, decide that they can save time by "team reading" the novel. In this scheme, Chandra will read from page 1 to a certain page and Bob will read from the next page through page 760, finishing the book. When they are through they will tell each other about the part they read. What is the last page that Chandra should read so that she and Bob spend the same amount of time reading the novel?

Chandra 和 Bob 各自都有这本书，他们决定通过”团队阅读”这本小说来节省时间。在这种方案下，Chandra 会从第一页读到某一页，Bob 会从下一页一直读到第 760 页，把书读完。当他们都完成各自的任务，他们会告诉对方自己所读的内容。那么为了使得 Chandra 和 Bob 阅读的时间相同，Chandra 所读的最后一页是第几页？

$\textbf{(A)}\ 425 \qquad \textbf{(B)}\ 444 \qquad \textbf{(C)}\ 456 \qquad \textbf{(D)}\ 484 \qquad \textbf{(E)}\ 506$

Problem 16

Before Chandra and Bob start reading, Alice says she would like to team read with them. If they divide the book into three sections so that each reads for the same length of time, how many seconds will each have to read?

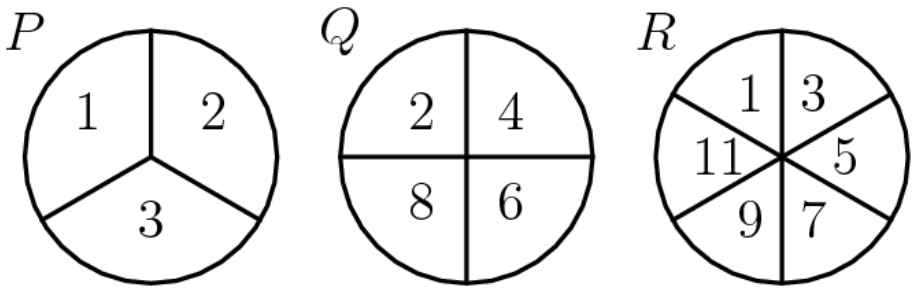
在 Chandra 和 Bob 开始阅读前，Alice 说她想加入和他俩一起团队阅读。若他们把书分成 3 部分，使得每人阅读时间都相同，那么每人阅读时间是多少秒？

$\textbf{(A)}\ 6400 \qquad \textbf{(B)}\ 6600 \qquad \textbf{(C)}\ 6800 \qquad \textbf{(D)}\ 7000 \qquad \textbf{(E)}\ 7200$

Problem 17

Jeff rotates spinners P, Q and R and adds the resulting numbers. What is the probability that his sum is an odd number?

Jeff 旋转转盘 P，Q 和 R，并把它们各自得到的数字相加。问所得到的和是个奇数的概率是多少？



$\textbf{(A)}\ \frac{1}{4} \qquad \textbf{(B)}\ \frac{1}{3} \qquad \textbf{(C)}\ \frac{1}{2} \qquad \textbf{(D)}\ \frac{2}{3} \qquad \textbf{(E)}\ \frac{3}{4}$

Problem 18

A cube with 3-inch edges is made using 27 cubes with 1-inch edges. Nineteen of the smaller cubes are white and eight are black. If the eight black cubes are placed at the corners of the larger cube, what fraction of the surface area of the larger cube is white?

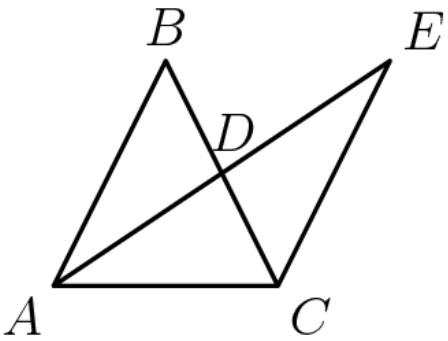
一个边长为 3 英寸的正方体是由 27 个边长为 1 英寸的正方体组成的。其中 19 个小正方体为白色，8 个是黑色。若这 8 个黑色正方体放在大的正方体的 8 个角落，那么大正方体的表面积中，白色部分的比例是多少？

$\textbf{(A)}\ \frac{1}{9} \qquad \textbf{(B)}\ \frac{1}{4} \qquad \textbf{(C)}\ \frac{4}{9} \qquad \textbf{(D)}\ \frac{5}{9} \qquad \textbf{(E)}\ \frac{19}{27}$

Problem 19

Triangle ABC is an isosceles triangle with $\overline{AB} = \overline{BC}$. Point D is the midpoint of both $\overline{BC}$ and $\overline{AE}$, and $\overline{CE}$ is 11 units long. Triangle ABD is congruent to triangle ECD. What is the length of $\overline{BD}$?

三角形 *ABC* 是个等腰三角形，$\overline{AB} = \overline{BC}$。点 *D* 是线段$\overline{BC}$的中点，同时也是线段$\overline{AE}$的中点。线段$\overline{CE}$长度为 11 个单位。三角形 *ABD* 和三角形 *ECD* 全等的，则$\overline{BD}$的长度是多少？



(A) 4 **(B)** 4.5 **(C)** 5 **(D)** 5.5 **(E)** 6

Problem 20

A singles tournament had six players. Each player played every other player only once, with no ties. If Helen won 4 games, Ines won 3 games, Janet won 2 games, Kendra won 2 games and Lara won 2 games, how many games did Monica win?

某个单打比赛有六名选手。每个选手和其他每个选手都比赛一次，没有平局。如果 Helen 赢了 4 场比赛，Ines 赢了 3 场比赛，Janet 赢了 2 场比赛，Kendra 赢了 2 场比赛，Lara 赢了 2 场比赛，则 Monica（第六个选手）赢了多少场比赛？

(A) 0 **(B)** 1 **(C)** 2 **(D)** 3 **(E)** 4

Problem 21

An aquarium has a rectangular base that measures 100 cm by 40 cm and has a height of 50 cm. The aquarium is filled with water to a depth of 37 cm. A rock with volume 1000cm^3 is then placed in the aquarium and completely submerged. By how many centimeters does the water level rise?

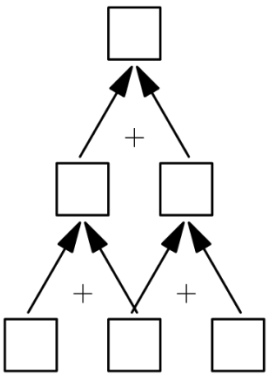
一个鱼缸有一个尺寸为 100 厘米 x 40 厘米的长方形底座，鱼缸高为 50 厘米。鱼缸里水深 37 厘米。将一块体积为 1000 立方厘米的石头放入鱼缸并完全浸没。问水位上升了多少厘米？

(A) 0.25 **(B)** 0.5 **(C)** 1 **(D)** 1.25 **(E)** 2.5

Problem 22

Three different one-digit positive integers are placed in the bottom row of cells. Numbers in adjacent cells are added and the sum is placed in the cell above them. In the second row, continue the same process to obtain a number in the top cell. What is the difference between the largest and smallest numbers possible in the top cell?

将 3 个不同的 1 位正整数放入最底层的三个方格中。然后将相邻方格里的数字相加，得到的和放入位于这两个方格之上的方格内。对于第二层，重复同样的步骤得到顶层方格内的数字。则顶层方格内的数字的最大可能值和最小可能值的差是多少？



(A) 16 **(B)** 24 **(C)** 25 **(D)** 26 **(E)** 35

Problem 23

A box contains gold coins. If the coins are equally divided among six people, four coins are left over. If the coins are equally divided among five people, three coins are left over. If the box holds the smallest number of coins that meets these two conditions, how many coins are left when equally divided among seven people?

一个盒子内装有金币。若把这些金币均分给 6 个人，那么还剩 4 枚金币。若把这些金币均分给 5 个人，那么还剩 3 枚金币。若盒子里装有的金币个数是满足以上条件的最少的金币个数，那么当把这些金币均分给 7 个人，还剩多少枚金币？

(A) 0 **(B)** 1 **(C)** 2 **(D)** 3 **(E)** 5

Problem 24

In the multiplication problem below, A, B, C and D are different digits. What is $A + B$?

在下面的乘法问题中，A，B，C，D 是不同的数字。那么 A+B 是多少？

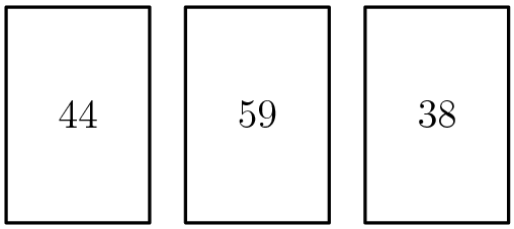
$$\begin{array}{cccc} & A & B & A \\ \times & & C & D \\ \hline C & D & C & D \end{array}$$

(A) 1 **(B)** 2 **(C)** 3 **(D)** 4 **(E)** 9

Problem 25

Barry wrote 6 different numbers, one on each side of 3 cards, and laid the cards on a table, as shown. The sums of the two numbers on each of the three cards are equal. The three numbers on the hidden sides are prime numbers. What is the average of the hidden prime numbers?

Bary 在 3 张牌的两面各写了一个数，共写了 6 个不同的数字，然后把牌放在桌子上，如图所示。每张卡片上的两个数字之和都相等。没有翻开的三个面上的数字都是质数。则这 3 个没翻开的面上的质数的平均值是多少？



(A) 13 **(B)** 14 **(C)** 15 **(D)** 16 **(E)** 17

2006 AMC 8 Answer Key

1	2	3	4	5	6	7	8	9	10	11	12	13
D	C	A	B	D	C	B	E	C	A	C	D	D
14	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	
B	C	E	B	D	D	C	A	D	A	A	B	