2002 AMC8

Problem 1

A circle and two distinct lines are drawn on a sheet of paper. What is the largest possible number of points of intersection of these figures?

在一张纸上画了一个圆和 2 条不同的直线，则这些图形的交点最多有多少个？

(A) 2　(B) 3　(C) 4　(D) 5　(E) 6

Problem 2

How many different combinations of $5 bills and $2 bills can be used to make a total of $17? Order does not matter in this problem.

有多少种方法可以将若干 5 元纸币和 2 元纸币组成总额为 17 元？这道题里不考虑顺序。

(A) 2　(B) 3　(C) 4　(D) 5　(E) 6

Problem 3

What is the smallest possible average of four distinct positive even integers?

4 个不同的正偶数的平均值最小可能是多少？

(A) 3　(B) 4　(C) 5　(D) 6　(E) 7

Problem 4

The year 2002 is a palindrome (a number that reads the same from left to right as it does from right to left). What is the product of the digits of the next year after 2002 that is a palindrome?

2002 年这个年份的数字是个回环数（是一个从左向右读和从右向左读一样的数）。那么 2002 年之后的下一个也是回环数的年份的各个位上数字之积是多少？

(A) 0　(B) 4　(C) 9　(D) 16　(E) 25

Problem 5

Carlos Montado was born on Saturday, November 9, 2002. On what day of the week will Carlos be 706 days old?

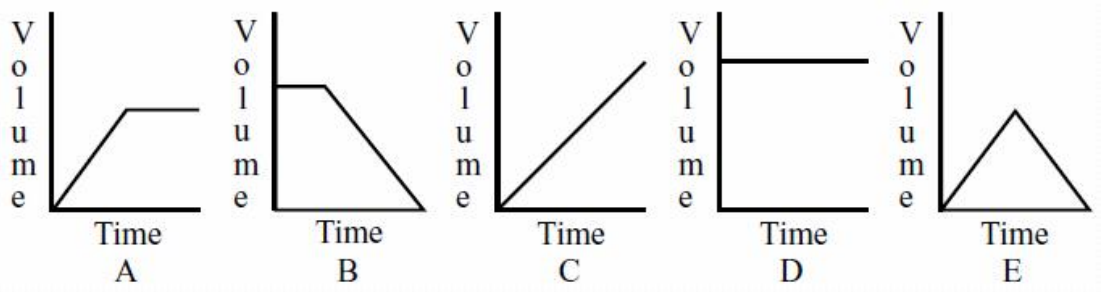
Carlos Montado 出生于 2002 年 11 月 9 日，这天周六。当 Carlos 年龄为 706 天时，这天是周几？

(A) Monday (B) Wednesday (C) Friday (D) Saturday (E) Sunday

Problem 6

A birdbath is designed to overflow so that it will be self-cleaning. Water flows in at the rate of 20 milliliters per minute and drains at the rate of 18 milliliters per minute. One of these graphs shows the volume of water in the birdbath during the filling time and continuing into the overflow time. Which one is it?

一种水盆设计为溢流式，以便能够自动清洗。水以每分钟 20 毫升的速度流入，以每分钟 18 毫升的速度排出。其中某一张图显示了从灌水开始，一直持续到不断溢出这段时间内，水盆中的水量。这张图是下面哪一个?

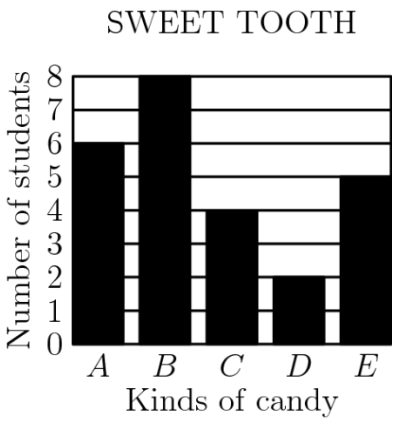


(A) A (B) B (C) C (D) D (E) E

Problem 7

The students in Mrs. Sawyer's class were asked to do a taste test of five kinds of candy. Each student chose one kind of candy. A bar graph of their preferences is shown. What percent of her class chose candy E?

Sawyer 夫人班上的学生被要求对五种糖果进行口味测试。每个学生都选了一种糖果。下面的条形图显示了他们的个人喜好。她班有百分之几的学生选择了糖果 E?



Number of students | 学生数量　Kind of candy | 糖果种类

(A) 5　　(B) 12　　(C) 15　　(D) 16　　(E) 20

Juan's Old Stamping Grounds

Problems 8,9 and 10 use the data found in the accompanying paragraph and table:

Juan 的集邮爱好
问题 8、9 和 10 使用的是下面段落和表格中的数据

Juan organizes the stamps in his collection by country and by the decade in which they were issued. The prices he paid for them at a stamp shop were: Brazil and France, 6 cents each, Peru 4 cents each, and Spain 5 cents each. (Brazil and Peru are South American countries and France and Spain are in Europe.)

Juan 按照国家和发行年代来给他的邮票分类。他在一家邮票店为它们支付的价格是：巴西和法国的邮票，每张 6 美分，秘鲁的每张 4 美分，西班牙的每张 5 美分。（巴西和秘鲁是南美国家，法国和西班牙在欧洲。）

Number of Stamps by Decade

Country	50s	60s	70s	80s
Brazil	4	7	12	8
France	8	4	12	15
Peru	6	4	6	10
Spain	3	9	13	9

Juan's Stamp Collection

Problem 8

How many of his European stamps were issued in the '80s?

他的欧洲邮票有多少张是在 80 年代发行的?

(A) 9 (B) 15 (C) 18 (D) 24 (E) 42

Problem 9

His South American stamps issued before the '70s cost him

他的 70 年代之前发行的南美邮票花了他多少钱?

(A) \$0.40 (B) \$1.06 (C) \$1.80 (D) \$2.38 (E) \$2.64

Problem 10

The average price of his '70s stamps is closest to

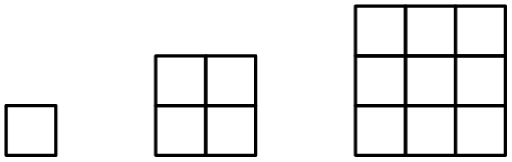
他的 70 年代的所有邮票的平均价格最接近

(A) 3.5 cents (B) 4 cents (C) 4.5 cents (D) 5 cents (E) 5.4 cents

Problem 11

A sequence of squares is made of identical square tiles. The edge of each square is one tile length longer than the edge of the previous square. The first three squares are shown. How many more tiles does the seventh square require than the sixth?

下面一系列正方形都是由若干相同的方形瓷砖组成的。每个正方形的边长比前一个正方形的边长多一个瓷砖长度。下图显示了前三个正方形。则第七个正方形比第六个正方形多需要多少块瓷砖？



(A) 11 (B) 12 (C) 13 (D) 14 (E) 15

Problem 12

A board game spinner is divided into three regions labeled A, B and C. The probability of the arrow stopping on region A is $\frac{1}{3}$ and on region B is $\frac{1}{2}$. The probability of the arrow stopping on region C is

一种棋盘游戏的转盘分成 3 个区域，标记为 A，B 和 C。已知箭头停在区域 A 的概率为$\frac{1}{3}$，停在区域 B 的概率为$\frac{1}{2}$，则箭头停在区域 C 的概率为

(A) $\frac{1}{12}$ (B) $\frac{1}{6}$ (C) $\frac{1}{5}$ (D) $\frac{1}{3}$ (E) $\frac{2}{5}$

Problem 13

For his birthday, Bert gets a box that holds 125 jellybeans when filled to capacity. A few weeks later, Carrie gets a larger box full of jellybeans. Her box is twice as high, twice as wide and twice as long as Bert's. Approximately, how many jellybeans did Carrie get?

Bert 的生日礼物是一个装满 125 颗果冻豆的盒子。几周后，Carrie 得到了一个更大的装满果冻豆的盒子。她的箱子是 Bert 的两倍高、两倍宽、两倍长。那么 Carrie 大概得到了多少颗果冻豆？

(A) 250 (B) 500 (C) 625 (D) 750 (E) 1000

Problem 14

A merchant offers a large group of items at 30% off. Later, the merchant takes 20% off these sale prices and claims that the final price of these items is 50% off the original price. The total discount is

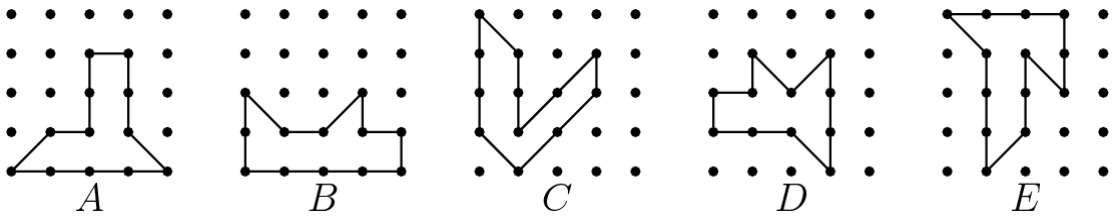
一位商人以 30%的折扣提供大量商品。后来，商家又在此折扣价的基础上降低 20%，并声称这些商品的最终价格比原价低 50%。则商品的总折扣是

(A) 35% (B) 44% (C) 50% (D) 56% (E) 60%

Problem 15

Which of the following polygons has the largest area?

下面哪个多边形的面积最大？

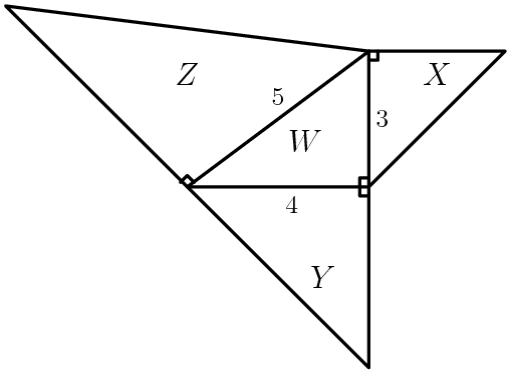


(A)A (B) B (C) C (D) D (E) E

Problem 16

Right isosceles triangles are constructed on the sides of a 3-4-5 right triangle, as shown. A capital letter represents the area of each triangle. Which one of the following is true?

如下图所示，在 3-4-5 直角三角形的三条边上作出三个等腰直角三角形。大写字母表示每个三角形的面积。下面哪个是正确的？



(A) $X+Z=W+Y$ (B) $W+X=Z$ (C) $3X+4Y=5Z$

(D) $X+W=\frac{1}{2}(Y+Z)$ (E) $X+Y=Z$

Problem 17

In a mathematics contest with ten problems, a student gains 5 points for a correct answer and loses 2 points for an incorrect answer. If Olivia answered every problem and her score was 29, how many correct answers did she have?

在一个有十道题的数学竞赛中，一个学生答对一题得 5 分，答错一题扣 2 分。如果 Olivia 回答了所有问题，她的分数是 29 分，那么她答对多少题？

(A) 5 (B) 6 (C) 7 (D) 8 (E) 9

Problem 18

Gage skated 1 hr 15 min each day for 5 days and 1 hr 30 min each day for 3 days. How long would he have to skate the ninth day in order to average 85 minutes of skating each day for the entire time?

Gage 连续 5 天每天滑冰 1 小时 15 分钟，连续 3 天每天滑冰 1 小时 30 分钟。那么第九天他需要滑多长时间才能使得在全部时间内每天平均滑 85 分钟？

(A) 1 hr (B) 1 hr 10 min (C) 1 hr 20 min (D) 1 hr 40 min (E) 2 hr

Problem 19

How many whole numbers between 99 and 999 contain exactly one 0?

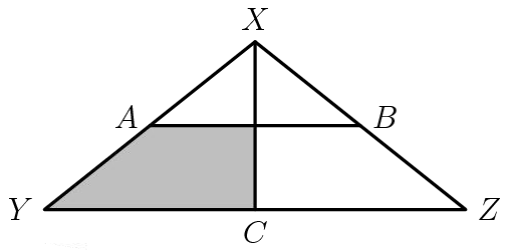
99 和 999 之间有多少整数恰好包含一个 0?

(A) 72 (B) 90 (C) 144 (D) 162 (E) 180

Problem 20

The area of triangle XYZ is 8 square inches. Points A and B are midpoints of congruent segments $\overline{XY}$ and $\overline{XZ}$. Altitude $\overline{XC}$ bisects $\overline{YZ}$. The area (in square inches) of the shaded region is

三角形 *XYZ* 的面积是 8 平方英寸。点 *A* 和点 *B* 分别是边$\overline{XY}$，$\overline{XZ}$的中点，且高$\overline{XC}$平分$\overline{YZ}$。那么阴影部分的面积是多少平方英寸？



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

Problem 21

Harold tosses a nickel four times. The probability that he gets at least as many heads as tails is

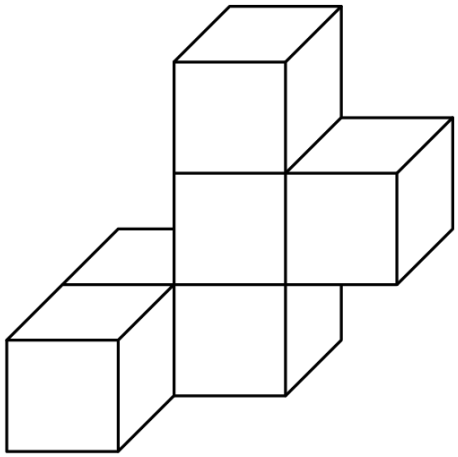
Harold 掷一枚镍币掷了四次，那么他得到正面的次数至少和反面一样多的概率是多少？

(A) $\frac{5}{16}$ (B) $\frac{3}{8}$ (C) $\frac{1}{2}$ (D) $\frac{5}{8}$ (E) $\frac{11}{16}$

Problem 22

Six cubes, each an inch on an edge, are fastened together, as shown. Find the total surface area in square inches. Include the top, bottom and sides.

如下图所示，6 个边长为 1 的正方体被粘在一起。请求出这个立体的总表面积，包含顶面，底面和侧面（单位：平方英寸）。

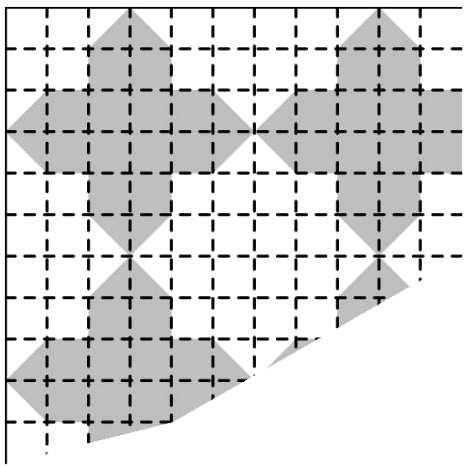


(A) 18 (B) 24 (C) 26 (D) 30 (E) 36

Problem 23

A corner of a tiled floor is shown. If the entire floor is tiled in this way and each of the four corners looks like this one, then what fraction of the tiled floor is made of darker tiles?

图中显示了铺了瓷砖的地板的一个角。如果整个地板都是用这种方式铺成的，并且四个角中的每一个都和这个角一样，那么整个地板中有多少比例是用深色瓷砖铺成的？



(A) $\frac{1}{3}$ (B) $\frac{4}{9}$ (C) $\frac{1}{2}$ (D) $\frac{5}{9}$ (E) $\frac{5}{8}$

Problem 24

Miki has a dozen oranges of the same size and a dozen pears of the same size. Miki uses her juicer to extract 8 ounces of pear juice from 3 pears and 8 ounces of orange juice from 2 oranges. She makes a pear-orange juice blend from an equal number of pears and oranges. What percent of the blend is pear juice?

Miki 有一打同样大小的桔子和一打同样大小的梨。Miki 用榨汁机能从 3 个梨中榨取 8 盎司梨汁，并且从 2 个橙子中能榨取 8 盎司橙汁。她用同样数量的梨和橙子做成了梨橙混合汁。那么这个混合汁里有百分之多少是梨汁？

(A) 30　　(B) 40　　(C) 50　　(D) 60　　(E) 70

Problem 25

Loki, Moe, Nick and Ott are good friends. Ott had no money, but the others did. Moe gave Ott one-fifth of his money, Loki gave Ott one-fourth of his money and Nick gave Ott one-third of his money. Each gave Ott the same amount of money. What fractional part of the group's money does Ott now have?

Loki，Moe，Nick 和 Ott 是好朋友。Ott 没有钱，但其他人有。Moe 给了 Ott 五分之一的钱，Loki 给了 Ott 四分之一的钱，Nick 给了 Ott 三分之一的钱。每个人都给了 Ott 同样的钱。那么现在 Ott 有的钱占了四个人全部的钱的几分之几？

(A) $\frac{1}{10}$　　(B) $\frac{1}{4}$　　(C) $\frac{1}{3}$　　(D) $\frac{2}{5}$　　(E) $\frac{1}{2}$

2002 AMC 8 Answer Key

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