1.
4 min.

58%

Suppose today is Tuesday. What day of the week will it be 100 days from now?

2.
5 min.

8%

I have four 3¢-stamps and three 5¢-stamps. Using one or more of these stamps, how many different amounts of postage can I make?

3.
5 min.

34%

Find the sum of the counting numbers from 1 to 25 inclusive. In other words, if S = 1 + 2 + 3 + ⋯ + 24 + 25, find the value of S.

4.
6 min.

16%

In a stationery store, pencils have one price and pens have another price. Two pencils and three pens cost 78¢. But three pencils and two pens cost 72¢. How much does one pencil cost?

5.
5 min.

10%

A work crew of 3 people requires 3 weeks and 2 days to do a certain job. How long would it take a work crew of 4 people to do the same job if each person of both crews works at the same rate as each of the others? Note: each week contains six work days.

1.
4 min.

36%

A girl bought a dog for $10, sold it for $15, bought it back for $20, and finally sold it for $25. Did the girl make or lose money, and how much did she make or lose?

2.
5 min.

33%

I have 30 coins consisting of nickels and quarters. The total value of the coins is $4.10. How many of each kind do I have?

3.
5 min.

9%

Rectangular cards, 2 inches by 3 inches, are cut from a rectangular sheet 2 feet by 3 feet. What is the greatest number of cards that can be cut from the sheet?

4.
5 min.

34%.

In three bowling games, Alice scores 139, 143, and 144. What score will Alice need in a fourth game in order to have an average score of 145 for all four games?

5.
6 min.

8%

A book has 500 pages numbered 1, 2, 3, and so on. How many times does the digit 1 appear in the page numbers?

1.
4 min.
44%

A set of marbles can be divided in equal shares among 2, 3, 4, 5, or 6 children with no marbles left over. What is the least number of marbles that the set could have?

2.
5 min.
7%

A motorist made a 60-mile trip averaging 20 miles per hour. On the return trip, he averaged 30 miles per hour. What was the motorist's average speed for the entire trip?

3.
4 min.
42%

The four-digit numeral 3AA1 is divisible by 9. What digit does A represent?

4.
7 min.
21%

Express the following sum as a simple fraction in lowest terms.

$$\frac{1}{1\times 2}+\frac{1}{2\times 3}+\frac{1}{3\times 4}+\frac{1}{4\times 5}+\frac{1}{5\times 6}$$

5.
5 min.
12%

If we count by 3s starting with 1, the following sequence is obtained: 1, 4, 7, 10, ... What is the 100th number in the sequence?

1.
5 min.
30%

100 pounds of chocolate is packaged into boxes each containing 1¼ pounds of chocolate. Each box is then sold for $1.75. What is the total selling price for all of the boxes of chocolate?
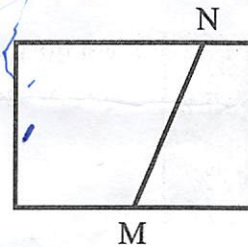
2.
5 min.
56%

In the multiplication problem at the right, A and B stand for different digits. Find A and B.

$$\begin{array}{r} A\ B \\ \times\ B\ A \\ \hline 1\ 1\ 4 \\ 3\ 0\ 4 \\ \hline 3\ 1\ 5\ 4 \end{array}$$

3.
5 min.
20%

In the rectangle at the right, line segment MN separates the rectangle into 2 sections. What is the largest number of sections into which the rectangle can be separated when 4 line segments are drawn through the rectangle?

4.
6 min.
8%

If $\dfrac{1}{3} = \dfrac{1}{A} + \dfrac{1}{B}$ where A and B are different whole numbers, find the value of A and the value of B.

5.
5 min.
13%

P and Q represent numbers, and P * Q means $\dfrac{P+Q}{2}$. What is the value of 3 * (6 * 8)?

1.
4 min.

41%

The numbers 2, 4, 6, and 8 are a set of four consecutive even numbers.
Suppose the sum of five consecutive even numbers is 320.
What is the smallest of the five numbers?

2.
5 min.

6%

Amy can mow 600 square yards of grass in 1½ hours. At this rate, how many minutes would it take her to mow 600 square feet?

3.
6 min.

3%.

Express the extended fraction at the right as a simple fraction in lowest terms.

$$\cfrac{1}{2+\cfrac{1}{2+\cfrac{1}{2+\cfrac{1}{2}}}}$$

4.
5 min.

20%

There are many numbers that divide 109 with a remainder of 4.
List all two-digit numbers that have that property.

5.
6 min.

29%

A dealer packages marbles in two different box sizes. One size holds 5 marbles and the other size holds 12 marbles. If the dealer packaged 99 marbles and used more than 10 boxes, how many boxes of each size did he use?

1.
3 min.
15%

X and Y are two different numbers selected from the first fifty counting numbers from 1 to 50 inclusive.

What is the largest value that $\dfrac{X+Y}{X-Y}$ can have?

2.
5 min.
65%

A chime clock strikes 1 chime at one o'clock, 2 chimes at two o'clock, 3 chimes at three o'clock, and so forth. What is the total number of chimes the clock will strike in a twelve-hour period?

3.
4 min.
13%

The average of five weights is 13 grams. This set of five weights is then increased by another weight of 7 grams. What is the average of the six weights?

4.
6 min.
31%

From a pile of 100 pennies(P), 100 nickels(N), and 100 dimes(D), select 21 coins which have a total value of exactly $1.00. In your selection you must also use at least one coin of each type. How many coins of each of the three types(P,N,D) should be selected?

5.
5 min.
13%

In a group of 30 high school students, 8 take French, 12 take Spanish and 3 take both languages. How many students of the group take neither French nor Spanish?

1.
4 min.
66%

A palimage of a counting number is the number that has the same digits as the given number but in reverse order. For example, 659 and 956 are palimages; so are 1327 and 7231. Now add 354 and its palimage. Call this sum X. Add X and its palimage. Call this sum Y. Add Y and its palimage. Call this sum Z. What is the value of Z?

2.
5 min.
28%

A boy has the following seven coins in his pocket: 2 pennies, 2 nickels, 2 dimes, and 1 quarter. He takes out two coins, records the sum of their values, and then puts them back with the other coins. He continues to take out two coins, record the sum of their values, and put them back. How many different sums can he record at most?

3.
4 min.
23%

Suppose all the counting numbers are arranged in columns as shown at the right. Under what column-letter will 1000 appear?

A	B	C	D	E	F	G
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	_	_

4.
4 min.
19%

Twelve people purchased supplies for a ten-day camping trip with the understanding that each of the twelve will get equal daily shares. They are then joined by three more people, but make no further purchases. How long will the supplies then last if the original daily share for each person is not changed?

5.
5 min.
4%

The U-shaped figure at the right contains 11 squares of the same size. The area of the U-shaped figure is 176 square inches. How many inches are in the perimeter of the U-shaped figure?
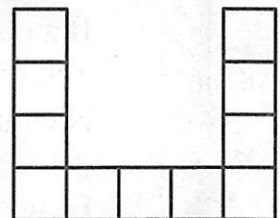
1.
4 min.

8%

A bag contains 500 beads, each of the same size, but in 5 different colors. Suppose there are 100 beads of each color and I am blindfolded. What is the fewest number of beads I must pick to be absolutely sure there are 5 beads of the same color among the beads I have picked blindfolded?

2.
5 min.

18%

If 20 is added to one-third of a number, the result is the double of the number. What is the number?

3.
5 min.

18%

Each of the boxes in the figure at the right is a square. How many different squares can be traced using the lines in the figure?
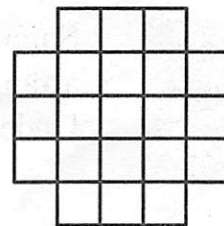
4.
5 min.

20%

A woman spent two-thirds of her money. She lost two-thirds of the remainder and then had $4 left. With how much money did she start?

5.
5 min.

17%

If a number ends in zeros, the zeros are called *terminal zeros*. For example, 520,000 has four terminal zeros, but 502,000 has just three terminal zeros. Let N equal the product of all counting numbers from 1 through 20:

$$N = 1 \times 2 \times 3 \times 4 \times \cdots \times 20.$$

How many terminal zeros will N have when it is written in standard form?

1.
5 min.
46%

In the "magic-square" at the right, five more numbers can be placed in the boxes so that the sum of the three numbers in each row, in each column, and in each diagonal is always the same. What value should X have?

15		35
50		
25	X	

2.
4 min.
11%

If I start with 2 and count by 3s until I reach 449, I will get: 2, 5, 8, 11, ... , 449 where 2 is the first number, 5 is the second number, 8 is the third number and so forth. If 449 is the Nth number, what is the value of N?

3.
5 min.
13%

The perimeter of a rectangle is 22 inches and the inch-measure of each side is a counting number. How many different areas in square inches can the rectangle have?

4.
5 min.
9%

A man drives from his home at 30 miles per hour to the shopping center which is 20 miles from his home. On the return trip he encounters heavy traffic and averages 12 miles per hour. How much time does the man take in driving to and from the shopping center?

5.
6 min.
12%

In the division problem at the right, the blanks represent missing digits. If A and B represent the digits of the quotient, what are the values of A and B?

$$
\begin{array}{r}
AB \\
5\,\overline{)\,\_\,\_\,\_\,\_} \\
\underline{-6\,\_} \\
\_\,\_\,\_ \\
\underline{} \\
4\,3\,2 \\
0
\end{array}
$$

1.
4 min.

32%

In the addition problem at the right, each letter stands for a digit and different letters stand for different digits. What digits do the letters H, E, and A each represent?

$$
\begin{array}{r}
H\ E \\
H\ E \\
H\ E \\
+\ H\ E \\
\hline
A\ H
\end{array}
$$

2.
5 min.

29%

The product of two numbers is 144 and their difference is 10. What is the sum of the two numbers?

3.
5 min.

17%

A and B are whole numbers, and $\dfrac{A}{11}+\dfrac{B}{3}=\dfrac{31}{33}$.

Find the value of A and the value of B.

4.
5 min.

15%

The XYZ club collected a total of $1.21 from its members with each member contributing the same amount. If each member paid for his or her share with 3 coins, how many nickels were contributed?

5.
6 min.

19%

During a school year, a student was given an award of 25¢ for each math test he passed and was fined 50¢ for each math test he failed. At the end of the school year, the student had passed 7 times as many tests as he had failed, and received $3.75. How many tests did he fail?

1.
5 min.
39%

Julius Caesar wrote the Roman Numerals I, II, III, IV, and V in a certain order from left to right. He wrote I before III but after IV. He wrote II after IV but before I. He wrote V after II but before III. If V was not the third numeral, in what order did Caesar write the five numerals from left to right?

2.
5 min.
35%

In the multiplication problem at the right, each blank space represents a missing digit. Find the product.

$$
\begin{array}{r}
4\ \_\ \_ \\
\times\ \_\ 7 \\
\hline
\_\ \_\ 8\ 2 \\
1\ 2\ \_\ \_ \\
\hline
\end{array}
$$

product: _ _ _ _ _

3.
4 min.
79%

Glen, Harry, and Kim each have a different favorite sport among tennis, baseball, and soccer. Glen does not like baseball or soccer. Harry does not like baseball. Name the favorite sport of each person.

4.
4 min.
18%

An acute angle is an angle whose measure is between 0° and 90°. Using the rays in the diagram, how many different acute angles can be formed?
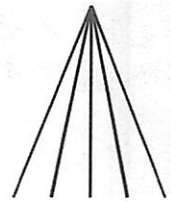
5.
6 min.
14%

Thirteen plums weigh as much as two apples and one pear. Four plums and one apple have the same weight as one pear. How many plums have the weight of one pear?

1.
4 min.
63%

Arrange the digits 1, 1, 2, 2, 3, 3, as a six-digit number in which the 1s are separated by one digit, the 2s are separated by two digits, and the 3s are separated by three digits. There are two answers. Find one.

2.
3 min.
26%

Suppose five days before the day after tomorrow was Wednesday. What day of the week was yesterday?

3.
5 min.
33%

At the right, ABCD is a square whose sides are each 2 units long. The length of the shortest path from A to C following the lines of the diagram is 4 units. How many different shortest paths are there from A to C?
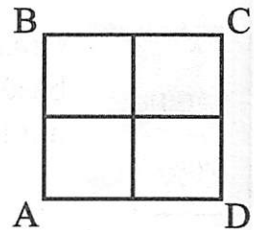
4.
4 min.
6%

A dollar was changed into 16 coins consisting of just nickels and dimes. How many coins of each kind were in the change?

5.
6 min.
13%

A number has a remainder of 1 when divided by 4, a remainder of 2 when divided by 5, and a remainder of 3 when divided by 6. What is the smallest number that has the above properties?

1.
4 min.
34%

Each of the boxes in the figure at the right is a square. Using the lines of the figure, how many different squares can be traced?
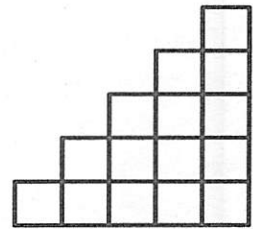
2.
5 min.
22%

In the multiplication problem at the right, different letters stand for different digits, and ABC and DBC each represent a three-digit number. What number does DBC represent? (Two answers are possible; give one.)

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

3.
4 min.
56%

Consecutive numbers are whole numbers that follow in order such as 7, 8, 9, 10, 11, and 12. Find three consecutive numbers such that the sum of the first and third is 118.

4.
6 min.
21%

When Anne, Betty, and Cynthia compared the amount of money each had, they discovered that Anne and Betty together had $12, Betty and Cynthia together had $18, and Anne and Cynthia together had $10. Who had the least amount of money, and how much was it?

5.
5 min.
43%

A total of fifteen pennies are put into four piles so that each pile has a different number of pennies. What is the smallest possible number of pennies that could be in the largest pile?

1.
4 min.

25%

The perimeter of a rectangle is 20 feet and the foot-measure of each side is a whole number. How many rectangles with different shapes satisfy these conditions?

2.
5 min.

45%

In a math contest of 10 problems, 5 points was given for each correct answer and 2 points was deducted for each incorrect answer. If Nancy answered all 10 problems and scored 29 points, how many correct answers did she have?

3.
4 min.

40%

The counting numbers are arranged in four columns as shown at the right. Under which column letter will 101 appear?

A	B	C	D
1	2	3	4
8	7	6	5
9	10	11	12
...	...	14	13

4.
6 min.

30%

Three water pipes are used to fill a swimming pool. The first pipe alone takes 8 hours to fill the pool, the second pipe alone takes 12 hours to fill the pool, and the third pipe alone takes 24 hours to fill the pool. If all three pipes are opened at the same time, how long will it take to fill the pool?

5.
5 min.

34%

In the "magic square" at the right, the four numbers in each column, in each row, and in each of the two diagonals, have the same sum. What value should N have?

|		7	12
N	4	9	
	5	16	3
8	11		

1.
4 min.

81%

A train can hold 78 passengers. The train starts out empty and picks up 1 passenger at the first stop, 2 passengers at the second stop, 3 passengers at the third stop, and so forth. After how many stops will the train be full?

2.
5 min.

21%

The complete outside including the bottom of a wooden 4 inch cube is painted red. The painted cube is then cut into 1 inch cubes. How many of the 1 inch cubes do not have red paint on any face?
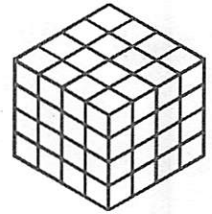
3.
5 min.

33%

The number of two-dollar bills I need to pay for a purchase is 9 more than the number of five-dollar bills I need to pay for the same purchase. What is the cost of the purchase?

4.
4 min.

55%

If 24 gallons of water are poured into an empty tank, then 3/4 of the tank is filled. How many gallons does a full tank hold?

5.
6 min.

19%

3×3, $3\times3\times3$, and $3\times3\times3\times3$ are "multiplication strings" of two 3s, three 3s, and four 3s respectively. When each string multiplication is done, 3×3 ends in 9, $3\times3\times3$ ends in 7, and $3\times3\times3\times3$ ends in 1. In what digit will a multiplication string of thirty-five 3s end?

1.
3 min.
54%

The last Friday of a particular month is on the 25th day of the month. What day of the week is the first day of the month?

2.
4 min.
55%

The age of a man is the same as his wife's age with the digits reversed. The sum of their ages is 99 and the man is 9 years older than his wife. How old is the man?

3.
4 min.
52%

A group of 21 people went to the county fair with 9 people on a stagecoach and 3 people in each buggy. On the return trip, 4 people rode in each buggy. How many people returned on the stagecoach?

4.
5 min.
36%

At the right are three views of the same cube. What letter is on the face opposite (1) H, (2) X, and (3) Y? (Give your answer in the same order.)

5.
6 min.
4%

D is the sum of the odd numbers from 1 through 99 inclusive, and N is the sum of the even numbers from 2 through 98 inclusive:

$$D = 1 + 3 + 5 + \cdots + 99 \text{ and } N = 2 + 4 + 6 + \cdots + 98$$

Which is greater, D or N, and by how much?

1.
4 min.

67%

I have exactly ten coins whose total value is $1. If three of the coins are quarters, what are the remaining coins?

2.
4 min.

25%
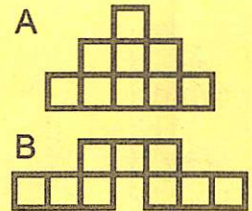
One loaf of bread and six rolls cost $1.80. At the same prices, two loaves of bread and four rolls cost $2.40. How much does one loaf of bread cost?

3.
5 min.

26%

The small boxes in Figures A and B at the right are congruent squares. The perimeter of Figure A is 48 inches. What is the perimeter of Figure B? (The perimeter of a figure is the distance around it.)

4.
5 min.

17%

If a kindergarten teacher places her children 4 on each bench, there will be 3 children who will not have a place. However, if 5 children are placed on each bench, there will be 2 empty places. What is the smallest number of children the class could have?

5.
4 min.

14%

If the digits A, B, and C are added, the sum is the two-digit number AB as shown at the right. What is the value of C?

$$
\begin{array}{r}
A \\
B \\
+\ C \\
\hline
A\ B
\end{array}
$$

1.
4 min.

38%

The sum of the weights of Tom and Bill is 138 pounds and one boy is 34 pounds heavier than the other. How much does the heavier boy weigh?

2.
5 min.

23%

When I open my mathematics book, there are two pages which face me and the product of the two page numbers is 1806. What are the two page numbers?

3.
4 min.

40%

Eight one-inch cubes are put together to form the T-figure shown at the right. The complete outside of the T-figure is painted red and then separated into one-inch cubes. How many of the cubes have exactly four red faces?
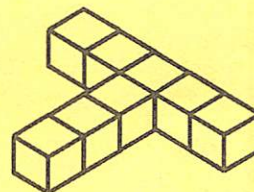
4.
5 min.

8%

The members of an Olympiad team contributed a total of $1.69 for refreshments for their weekly practice. Each member contributed the same amount and paid for his or her share in five coins. How many nickels were contributed by all of the members?

5.
5 min.

13%

Consecutive numbers are counting numbers that follow in order as in 7, 8, 9, 10, and so forth. Suppose the average of 15 consecutive numbers is 15. What is the average of the first five numbers of the set?

1.
4 min.

27%

A camera and case together cost $100. If the camera costs $90 more than the case, how much does the case cost?

2.
3 min.

72%

In the addition problem at the right A, B, and C are digits. If C is placed in the tens column instead of the units column as shown at the far right, the sum is 97. What are the values of A, B, and C?

$$\begin{array}{r} A\ B \\ +\ C \\ \hline 5\ 2 \end{array} \qquad \begin{array}{r} A\ B \\ +\ C \\ \hline 9\ 7 \end{array}$$

3.
5 min.

53%

Suppose K, L, and M represent the number of points assigned to the three target regions shown at the right. The sum of K and L is 11, the sum of L and M is 19, and the sum of K and M is 16. How many points are assigned to M?
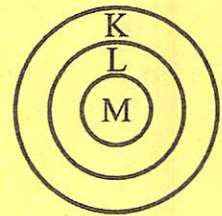
4.
5 min.

43%

Mrs. Winthrop went to a store, spent half of her money and then $10 more. She went to a second store, spent half of her remaining money and then $10 more. But she then had no money left. How much money did she have to begin with when she went to the first store?

5.
5 min.

12%

A4273B is a six-digit number in which A and B are digits, and the number is divisible by 72 without remainder. Find the value of A and the value of B.

1.
4 min.

15%

A train is moving at the rate of 1 mile in 1 minute and 20 seconds. If the train continues at this rate, how far will it travel in one hour?

2.
5 min.

55%

If a number is divided by 3 or 5, the remainder is 1. If it is divided by 7, there is no remainder. What number between 1 and 100 satisfies the above conditions?

3.
5 min.

54%

Toytrain cars made of blocks of wood either 6 inches long or 7 inches long can be hooked together to make longer trains. Which of the following train-lengths cannot be made by hooking together either 6-inch train cars, 7-inch train cars, or a combination of both:
29 inches, 30 inches, 31 inches, 32 inches, 33 inches?

4.
5 min.

8%

A circular track is 1000 yards in circumference. Cyclists A, B, and C start at the same place and time, and race around the track at the following rates per minute: A at 700 yards, B at 800 yards, and C at 900 yards. What is the least number of minutes it must take for all three to be together again?

5.
6 min.

20%

Alice and Betty each want to buy the same kind of ruler. But Alice is 22¢ short and Betty is 3¢ short. When they combine their money, they still do not have enough money. What is the most the ruler could cost?

1.
4 min.

56%

Six dollars were exchanged for nickels and dimes. The number of nickels was the same as the number of dimes. How many nickels were there in the change?

2.
4 min.

23%

In the multiplication example at the right, A, B, and H represent different digits. What is the sum of A, B, and H?

$$\begin{array}{r} B\ A \\ \times\ \ 7 \\ \hline H\ A\ A \end{array}$$

3.
5 min.

9%

A total of 350 pounds of cheese is packaged into boxes each containing 1¾ pounds of cheese. Each box is then sold for $1.75. What is the total selling price of all of the boxes of cheese?

4.
4 min.

42%

A wooden block is 4 inches long, 4 inches wide, and 1 inch high. The block is painted red on all six sides and then cut into sixteen 1 inch cubes. How many of the cubes each have a total number of red faces that is an even number?
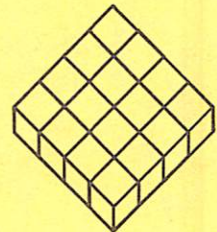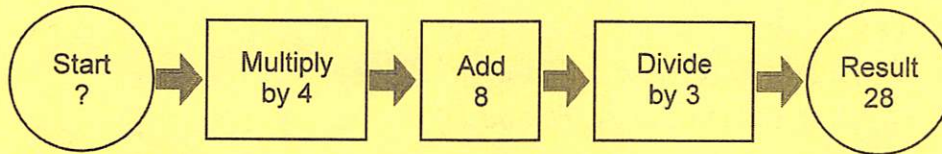
5.
6 min.

43%

$1200 is divided among four brothers so that each gets $100 more than the brother who is his next younger brother. How much does the youngest brother get?

1.
3 min.

40%

Suppose two days ago was Sunday. What day of the week will 365 days from today then be?

2.
5 min.

59%

Start ? → Multiply by 4 → Add 8 → Divide by 3 → Result 28

What should the starting number be in the above diagram?

3.
5 min.

14%

A rectangular tile is 2 inches by 3 inches. What is the least number of tiles that are needed to completely cover a square region 2 feet on each side?

4.
6 min.

51%

Six arrows land on the target shown at the right. Each arrow is in one of the regions of the target. Which of the following total scores is possible: 16, 19, 26, 31, 41, 44?

3
5
7
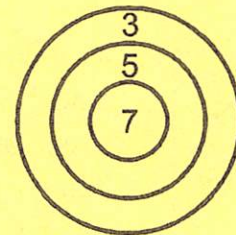
5.
6 min.

7%

A number N divides each of 17 and 30 with the same remainder in each case. What is the largest value N can have?

1.
**4 min.**
24%

The average of five numbers is 18. Let the first number be increased by 1, the second number by 2, the third number by 3, the fourth number by 4, and the fifth number by 5. What is the average of the set of increased numbers?

2.
5 min.
66%

The set of stairs shown at the right is constructed by placing layers of cubes on top of each other. What is the total number of cubes contained in the staircase?
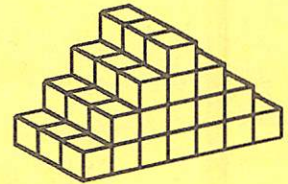
3.
6 min.
8%

When a counting number is multiplied by itself, the result is a square number. Some examples of square numbers are 1, 4, 9, 16, and 25. How many square numbers are there between 1,000 and 2,000?

4.
5 min.
20%

The owner of a bicycle store had a sale on bicycles (two-wheelers) and tricycles (three-wheelers). Each cycle had two pedals. When he counted the total number of pedals of the cycles, he got 50. When he counted the total number of wheels of the cycles, he got 64. How many tricycles were offered in the sale?

5.
5 min.
16%

A jar filled with water weighs 10 pounds. When one-half of the water is poured out, the jar and remaining water weigh 5¾ pounds. How much does the jar weigh?

1.
4 min.

41%

Person A was born on January 15, 1948.
Person B was born on January 15, 1962.
If both are alive now, in what year was person A twice as old as person B?

2.
5 min.

26%

A square piece of paper is folded in half as shown and then cut into two rectangles along the fold. The perimeter of each of the two rectangles is 18 inches. What is the perimeter of the original square?

3.
5 min.

10%

In the division example at the right A and B represent different digits. What is the sum of A and B if the remainder is zero?

$$\begin{array}{r} \text{BA} \\ \text{AB} \overline{\smash{)}\text{----}} \\ \text{===} \\ \underline{\ \ 1} \\ \text{===} \end{array}$$

4.
5 min.

4%

The product of two whole numbers is 10,000. If neither number contains a zero digit, what are the two numbers?

5.
7 min.

3%

A train traveling at 30 miles per hour reaches a tunnel which is 9 times as long as the train. If the train takes 2 minutes to completely clear the tunnel, how long is the train? (1 mile = 5,280 feet)

1.
4 min.

49%

My age this year is a multiple of 7. Next year it will be a multiple of 5. I am more than 20 years of age but less than 80. How old will I be 6 years from now?

2.
5 min.

32%

Six people participated in a checker tournament. Each participant played exactly three games with each of the other participants. How many games were played in all?

3.
6 min.

21%

Consecutive numbers are counting numbers that follow in order as in the case of 3, 4, 5, 6, and 7. Find three consecutive numbers whose product is 15,600.

4.
5 min.

13%

Of three numbers, two are 1/2 and 1/3. What should the third number be so that the average of all three is 1?

5.
6 min.

27%

The four-digit number A 5 5 B is divisible by 36.
What is the sum of A and B?

1.
4 min.
51%

The month of January has 31 days. Suppose January 1 occurs on Monday. What day of the week is February 22 of the next month?

2.
5 min.
60%

How many times does x occur in the diagram at the right?

```
x x x x x x x x x x x x x x x x x x
x x x x x x x x x x x                xx
x x x x x x x x x x x                xx
x x x x   x x x x x x                xx
x x x            x x x x x x x x x x x
x x            x x x x x x x x x x
x x x x x x x x x x x x x x x x x x
x x x x x x x x x x x x x x x x x x
```

3.
4 min.
12%

The product of three counting numbers is 24. How many different sets of 3 numbers have this property if the order of the 3 numbers in a set does not matter?

4.
4 min.
34%

A group of 12 girl scouts had enough food to last for 8 days when they arrived in camp. However, 4 more scouts joined them without the amount of food being increased. How long will the food last if each scout is given the same daily ration as originally planned?

5.
5 min.
4%

Let N be a number that divides 171 with a remainder of 6. List all the two-digit numbers that N can be.

1.
3 min.

53%

Carol spent exactly $1 for some 5¢-stamps and some 13¢-stamps. How many 5¢-stamps did she buy?

2.
5 min.

8%

A square has an area of 144 square inches. Suppose the square is partitioned into six congruent rectangles as shown at the right. How many inches are there in the perimeter of one of the six rectangles?
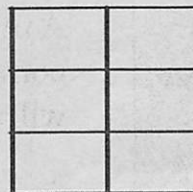
3.
5 min.

50%

In the addition problem at the right, there are three two-digit numbers in which different letters represent different digits. What digits do A, B, and C represent?

```
  A A
  B B
+ C C
-----
B A C
```

4.
5 min.

20%

The result of multiplying a counting number by itself is a square number. For example 1, 4, 9, and 16 are each square numbers because $1 \times 1 = 1$, $2 \times 2 = 4$, $3 \times 3 = 9$, and $4 \times 4 = 16$. What year in the 20th century (the years 1901 through 2000) was a square number?

5.
5 min.

23%

The digits of a two-digit number are interchanged to form a new two-digit number. The difference of the original number and the new number is 45. Find the largest two-digit number which satisfies these conditions.

1.
3 min.

18%

A and B are two different numbers selected from the first forty counting numbers, 1 through 40 inclusive.

What is the largest value that $\dfrac{A \times B}{A-B}$ can have?

2.
6 min.

9%

A twelve-hour clock loses 1 minute every hour. Suppose it shows the correct time now. What is the least number of hours from now when it will again show the correct time?

3.
5 min.

47%

A certain counting number is divisible by 3 and also by 5. When the number is divided by 7, the remainder is 4. What is the smallest number that satisfies these conditions?

4.
5 min.

35%

The figure shown consists of 3 layers of cubes with no gaps. Suppose the complete exterior of the figure (including the bottom) is painted red and then separated into individual cubes. How many of these cubes have exactly 3 red faces?
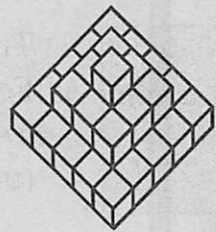
5.
6 min.

8%

Alice needs 1 hour to do a certain job. Betty, her older sister, can do the same job in 1/2 hour. How many minutes will it take them to do the job if they work together at the given rates?

1.
4 min.

30%

3, 6, 9, 12, ... are some multiples of 3. How many multiples of 3 are there between 10 and 226?

2.
5 min.

30%

ABCD is a rectangle with area equal to 36 square units. Points E, F, and G are midpoints of the sides on which they are located. How many square units are there in the area of triangle EFG?
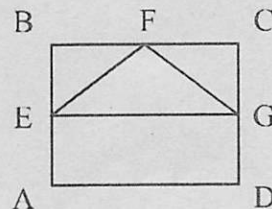
3.
4 min.

25%

When the sum of two whole numbers is multiplied by the difference of the numbers, the result is 85. If the difference of the two numbers is not 1, what is their sum?

4.
5 min.

6%

30! represents the product of all counting numbers from 1 through 30 inclusive: $1 \times 2 \times 3 \times 4 \times 5 \times \cdots \times 28 \times 29 \times 30$. If the product is factored into primes, how many 5s will the factorization contain?

5.
6 min.

7%

A printer has to number the pages of a book from 1 to 150. Suppose the printer uses a separate piece of type for each digit in each number. How many pieces of type will the printer have to use?

1.
3 min.

12%

Many whole numbers between 10 and 1,000 have 2 or 7 as the units digit. How many such numbers are there between 10 and 1,000?

2.
4 min.

42%

Peter has one of each of the following coins in his pocket: a penny, a nickel, a dime, a quarter, and a half-dollar. Four of these coins are taken out of the pocket and the sum of their values is calculated. How many different sums are possible?

3.
4 min.

43%

The front wheel of a vehicle has a circumference of 3 feet, the rear wheel has a circumference of 4 feet. How many more complete turns will the front wheel make than the rear wheel in travelling a distance of 1 mile on a straight road? (1 mile = 5280 feet)

4.
6 min.

32%

In the multiplication example at the right, each of A, B, and C stands for a different digit and each of the blank spaces represents a non-zero digit.
What digits do A, B, and C each represent?

$$
\begin{array}{r}
A\ B\ C \\
\times\ A\ B\ C \\
\hline
*\ *\ *\ 9 \\
*\ *\ *\ 4 \\
*\ *\ *\ 1 \\
\hline
\end{array}
$$

5.
5 min.

13%

Ann gave Betty as many cents as Betty had. Betty then gave Ann as many cents as Ann then had. At this point, each had 12 cents. How much did Ann have at the beginning?

1.
5 min.

17%

The weight of a whole brick is the same as 4 pounds plus the weight of 1/3 of the whole brick. How many pounds does the whole brick weigh?

2.
5 min.

23%

Consecutive odd numbers are odd numbers that differ by 2 and follow in order such as 1, 3, 5, 7, 9, or, 17, 19, 21. Find the first of seven consecutive odd numbers if the average of the seven numbers is 41.

3.
5 min.

23%

When the order of the digits of 2552 is reversed, the number remains the same. How many counting numbers between 100 and 1000 remain the same when the order of the number's digits is reversed?

4.
5 min.

7%

A tractor wheel is 88 inches in circumference. How many complete turns will the wheel make in rolling one mile on the ground?
(1 mile = 5,280 feet)

5.
5 min.

22%

In the addition problem at the right, each letter represents a digit and different letters represent different digits. What four-digit number does D E E R represent?

```
   I N
+ R I D
-------
D E E R
```

1.
4 min.
15%

Tom multiplied a number by 2½ and got 50 as an answer. However, he should have divided the number by 2½ to get the correct answer. What is the correct answer?

2.
5 min.
25%

Consider the counting numbers from 1 to 1000: 1, 2, 3, 4, ... , 1000. Which one of these numbers multiplied by itself, is closest to 1985?

3.
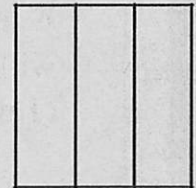**6 min.**
32%

The sum of the ages of Al and Bill is 25; the sum of the ages of Al and Carl is 20; the sum of the ages of Bill and Carl is 31. Who is the oldest of the three and how old is he?

4.
6 min.
19%

A square is divided into three congruent rectangles as shown at the right. Each of the three rectangles has a perimeter of 16 meters. How many meters are in the perimeter of the square?

5.
6 min.
18%

Abracadabra has four different coins with values as shown at the right. Suppose you had just one of each of the four different coins. How many different amounts can be made using one or more of the four different coins?
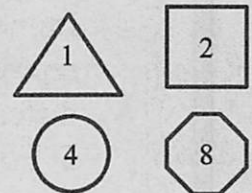
1.
4 min.
39%

The weight of a glass bowl and the marbles it contains is 50 ounces. If the number of marbles in the bowl is doubled, the total weight of the bowl and marbles is 92 ounces. What is the weight of the bowl?
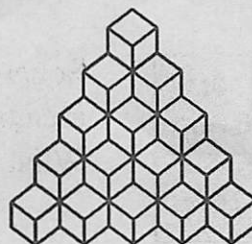(Assume that each of the marbles has the same weight.)

2.
5 min.
31%

A number is greater than 10 and has the property that, when divided either by 5 or by 7, the remainder is 1. What is the smallest odd counting number that has this property?

3.
6 min.
20%

The tower at the right is made up of five horizontal layers of cubes with no gaps. How many individual cubes are in the tower?

4.
6 min.
3%

A certain slow clock loses 15 minutes every hour. Suppose the clock is set to the correct time at 9 AM What will the correct time be when the slow clock first shows 10 AM?

5.
6 min.
22%

Said Anne to Betty: "If you give me one marble, we will each have the same number of marbles." Said Betty to Anne: "If you give me one marble, I will have twice as many marbles as you will then have."
How many marbles did Anne have before any exchange was made?

1.
4 min.

36%

The sum of the first twenty-five counting numbers is 325:
$$1 + 2 + 3 + 4 + \cdots + 25 = 325.$$
What is the sum of the next twenty-five counting numbers:
$$26 + 27 + 28 + 29 + \cdots + 50 = ?$$

2.
5 min.

75%

Eric has just three types of coins in his change-purse: nickels, dimes, and quarters. The purse contains more dimes than quarters, and more quarters than nickels and there are seven coins in all. What is the total value of the seven coins?

3.
6 min.

14%

Square ABCD and rectangle AEFG each have an area of 36 square meters. E is the midpoint of AB. What is the perimeter of rectangle AEFG?
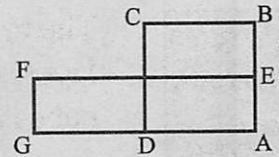
4.
6 min.

8%

If a is divided by b, the result is 3/4. If b is divided by c, the result is 5/6. What is the result when a is divided by c?

5.
6 min.

49%

Find the greatest counting number that divides 364, 414, and 539 with the same remainder in each case.

1.
3 min.

40%

In the XYZ contest, a school may enter 1, 2, 3, or, at most, 4 teams. Suppose 347 teams are entered in the XYZ contest. What is the smallest number of schools that could have entered the XYZ contest?

2.
4 min.

77%

What is the total of:
one plus two plus three plus four plus five plus six plus
one plus two plus three plus four plus five plus six plus
one plus two plus three plus four plus five plus six plus
one plus two plus three plus four plus five plus six plus
one plus two plus three plus four plus five?

3.
5 min.

7%

Express the sum at the right as a simple fraction in lowest terms.

$$\cfrac{1}{2+\cfrac{1}{2}} + \cfrac{1}{3+\cfrac{1}{3}}$$

4.
5 min.

24%

Alice started a Math Club during the first week of school. As the only member, she decided to recruit two new members during the following week of school. Each new member, during the week following the week when he or she became a member, recruits two new members. How many members will the club have at the end of five weeks?

5.
6 min.

18%

One light flashes every 2 minutes and another light flashes every 3½ minutes. Suppose both lights flash together at noon. What is the first time after 1 PM that both lights will flash together?
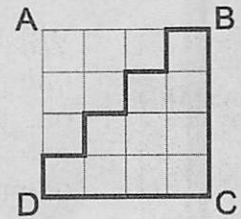
1.
4 min.
45%

In the subtraction problem at the right, each letter represents a digit, and different letters represent different digits. What digit does C represent?

$$\begin{array}{r} A\ B\ A \\ -\ C\ A \\ \hline A\ B \end{array}$$

2.
4 min.
16%

Each of the small boxes in the figure at the right is a square. The perimeter of square ABCD is 36 cm. What is the perimeter of the figure shown with darkened outline?
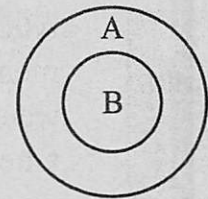
3.
5 min.
19%

2^3 means $2 \times 2 \times 2$ or 8.
3^3 means $3 \times 3 \times 3$ or 27.
N^3 means $N \times N \times N$.
Suppose $N^3 = 4,913$.
What is the value of N?

4.
6 min.
47%

Carl shot 3 arrows; 2 landed in the A ring and 1 landed in circle B for a total score of 17. David also shot 3 arrows; 1 landed in A and 2 in B for a total score of 22. How many points are assigned to circle B?

5.
5 min.
14%

In the following sequence of numbers, each number has one more 1 than the preceding number: 1, 11, 111, 1111, 11111, ... What is the tens digit of the sum of the first 30 numbers of the sequence?

1.
4 min.

47%

There are 4 separate large boxes, and inside each large box there are 3 separate small boxes, and inside each of these small boxes there are 2 separate smaller boxes. How many boxes, counting all sizes, are there altogether?

2.
6 min.

22%

When asked how many gold coins he had, the collector said:
    If I arrange them in stacks of five, none are left over.
    If I arrange them in stacks of six, none are left over.
    If I arrange them in stacks of seven, one is left over.
What is the least number of coins he could have?

3.
6 min.

52%

The length of the shortest trip from A to B along the edges of the cube shown is the length of 3 edges. How many different 3-edge trips are there from A to B?
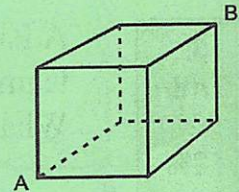
4.
5 min.

41%

How many two-digit numbers are there in which the tens digit is greater than the ones digit?

5.
6 min.

17%

Alice and Betty run a 50-meter race and Alice wins by 10 meters. They then run a 60-meter race, and each girl runs at the same speed she ran in the first race. By how many meters will Alice win?

1.
4 min.

60%

At the right, the sum of two 3-digit numbers is represented. A, B, and C represent the digits 2, 3 and 5 but not necessarily in the same order, and different letters represent different digits. What is the largest value the indicated sum could have?

$$\begin{array}{r} B\ A\ C \\ +\ C\ A\ B \\ \hline \end{array}$$

2.
5 min.

22%

$(5273)^2$ means 5273×5273; $(5273)^3$ means $5273 \times 5273 \times 5273$; and so forth. Suppose $(5273)^6$ is completely multiplied out. What will the units (or ones) digit be in the resulting product?

3.
5 min.

12%

A baseball league has nine teams. During the season, each of the nine teams plays exactly three games with each of the other teams. What is the total number of games played?

4.
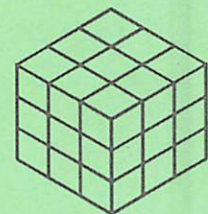**5 min.**

23%

June has 30 days. One year, June had exactly four Sundays. On which two days of the week could June 30 not have occurred that year?

5.
5 min.

20%

The six faces of a three-inch wooden cube are each painted red. The cube is then cut into one-inch cubes along the lines shown in the diagram. How many of the one-inch cubes have red paint on at least two faces?

1.
4 min.

65%

The serial number of my camera is a four-digit number less than 5,000 and contains the digits 2, 3, 5, and 8 but not necessarily in that order. The "3" is next to the "8", the "2" is not next to the "3", and the "5" is not next to the "2". What is the serial number?

2.
5 min.

12%

One day, Carol bought apples at 3 for 25¢ and sold all of them at 2 for 25¢. If she made a profit of $1 that day, how many apples did she sell?

3.
5 min.

20%

As shown, ABCD and AFED are squares with a common side AD of length 10 cm. Arc BD and arc DF are quarter-circles. How many square cm. are in the area of the shaded region?
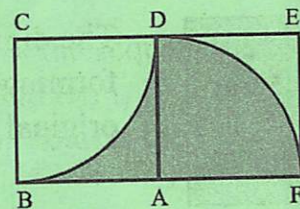
4.
6 min.

30%

When the same whole number is added to both the numerator and denominator of 2/5, the value of the new fraction is 2/3. What number was added to both the numerator and denominator?

5.
6 min.

61%

The sum of the ages of three children is 32. The age of the oldest is twice the age of the youngest. The ages of the two older children differ by three years. What is the age of the youngest child?

1.
4 min.
44%

A slow clock loses 3 minutes every hour. Suppose the slow clock and a correct clock both show the correct time at 9 A.M. What time will the slow clock show when the correct clock shows 10 o'clock the evening of the same day?

2.
5 min.
34%

The figure at the right is a "magic square" with missing entries. When complete, the sum of the four entries in each column, each row, and each diagonal is the same. Find the value of A and the value of B.

A		7	12
	4	9	
	5	16	
8	11		B

3.
5 min.
26%

The digit 3 is written at the right of a certain two-digit number thus forming a three-digit number. The new number is 372 more than the original two-digit number. What was the original two-digit number?

4.
6 min.
25%

ABCD is a square with area 16 sq. meters. E and F are midpoints of sides AB and BC, respectively.
What is the area of trapezoid AEFC, the shaded region?
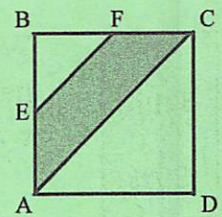
5.
6 min.
10%

Peter agreed to work after school for 8 weeks at a fixed weekly rate. But instead of being given only money, he was to be given $85 and a bicycle. However, Peter worked only 5 weeks at the fixed weekly rate and was given $25 and the bicycle. How much was the bicycle worth?