

**1A Time: 3 minutes**

What is the value of the following?

$$(8 \times 4) + (8 \times 3) + (8 \times 2) + (8 \times 1)$$

1B Time: 5 minutes

A bag contains 18 jelly beans. 4 are red, 6 are white and 8 are blue. Amanda takes them out one at a time without looking. What is the fewest jelly beans she must take out to be certain that at least 2 of the jelly beans she takes out are blue?

1C Time: 5 minutes

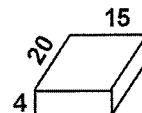
A prime number is a counting number with exactly two factors, the number itself and the number 1. In the sequence 2, 5, 11, 23, ..., each number is obtained by doubling the previous number and adding 1. What is the first number in the sequence that is *not* a prime number?

1D Time: 6 minutes

A digital timer counts down from 5 minutes (5:00) to 0:00 one second at a time. For how many seconds does at least one of the three digits show a 2?

1E Time: 6 minutes

A rectangular box has a top that is 15 cm by 20 cm and a height of 4 cm. An ant begins at one corner of the box and walks along the edges. It touches all eight corners. What is the shortest distance, in cm, that the ant may travel?





2A Time: 3 minutes

What is the three-digit number CAT?

$$\begin{array}{r} 345 \\ 678 \\ + \text{CAT} \\ \hline 1205 \end{array}$$

2B Time: 5 minutes

Suppose a *twinner* is a number that is both 1 more than a prime number and 1 less than another prime number. For example, 30 is a *twinner* because 29 and 31 are both prime numbers. What is the sum of the three least *twinnings*?

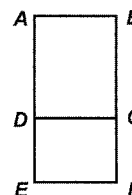
2C Time: 5 minutes

Five standard dice are rolled on a flat surface and the numbers on the top faces are totaled. How many different totals are possible?

(Standard dice have 6 faces, each showing a different number from 1 through 6.)

2D Time: 5 minutes

The area of rectangle $ABCD$ is 63 square centimeters. The area of rectangle $DCFE$ is 35 sq cm. In each rectangle, the length of each side is a counting number of cm. AB is longer than DE . How long is AE , in cm?



2E Time: 7 minutes

Ashley, Brenda, and Cate play a game with marbles. The winner of each round of the game gets from *each* of the other players as many marbles as the winner had at the start of that round. After Round 2, Ashley has 5 marbles, Brenda has 6, and Cate has 7. How many marbles did Ashley have at the start of the game?

**3A** *Time: 4 minutes*

Joshua writes a four-digit number whose digits are 3, 5, 7, and 9, not necessarily in that order. The number is a multiple of 5. The first two digits and the last two digits have the same sum. The thousands digit is larger than the hundreds digit. What is Joshua's number?

3B *Time: 6 minutes*

One hat and two shirts cost \$21. Two hats and one shirt cost \$18. Megan has exactly enough money to buy one hat and one shirt. How much money does Megan have?

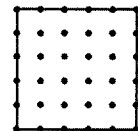
3C *Time: 6 minutes*

It takes 3 painters 4 hours to paint 1 classroom. How many hours does it take 1 painter to paint 2 classrooms of the same size as the first one?

Assume all painters work at the same rate for the full time.

3D *Time: 5 minutes*

Mr. Wright wants to tile a 5 ft by 5 ft square floor. He has three kinds of square tiles: 1 ft by 1 ft, 2 ft by 2 ft, and 3 ft by 3 ft. Tiles may not overlap or be cut. What is the fewest tiles Mr. Wright may use to completely cover his floor?

**3E** *Time: 7 minutes*

111,111 is the product of 5 different prime numbers. What is the sum of those 5 prime numbers?