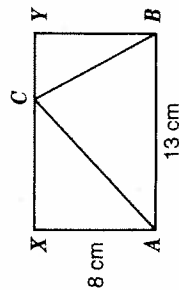


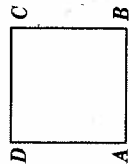
If a card has an even number on one side, then it has a vowel on the other.

What is the ratio of the sum of the areas of the two smaller triangles in rectangle $ABYX$ to the area of $\triangle ABC$?



What is the largest number that evenly divides the sum of any five consecutive whole numbers?

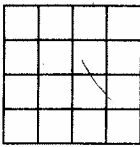
A triangle is to be made with one side $\overline{AB}$ in the square pictured. The third vertex is to come from the interior of the square. What is the probability rounded to the nearest whole percent that the triangle is obtuse? Right? Acute?



Starting with 1, the teacher wrote the counting numbers across the chalkboard until she ran out of space. One student came up and erased one of the numbers. The average was then calculated and found to be $13\frac{9}{13}$. What number was erased?

Twenty members of the mathematics team went to Washington. One-fourth of the team were also on the basketball team. One-fifth of them were on the soccer team. Three members were on the soccer and basketball teams. The rest of the members were on the debate team. How many were on the debate team?

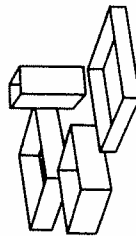
Find as many ways as you can to separate a four-by-four square into two congruent shapes composed of complete little squares. Each of the little squares in the congruent shapes must share at least one edge with another little square in that shape.



Find the letter that is the 276th entry in the following sequence:

$$Y, R, Y, R, R, Y, R, R, R, R, Y, R, R, R, R, Y, R, R, R, \dots$$

How can you place twenty-one marbles in four boxes so that each box contains an odd number of marbles?



A magnifying glass causes the length of a piece of string $1\frac{1}{2}$ cm long to appear to be $7\frac{1}{2}$ cm long. How large will an angle of $3\frac{1}{4}$ degrees appear when it is magnified by the glass?

These numbers are pumpwarts:

16325 34721 12347 52163 90341 50381

These numbers are not pumpwarts:

2564 12345 854 12635 34325 45026

Which of these numbers are pump-
warts?

72521 72341 70523 4562 13562 52703

A cottage heated by wood was shared for the night by three people, Larry, Mo, and Curly. Larry brought 5 logs for the fire, Mo brought 3 logs for the fire, and Curly did not bring any logs. Instead, Curly brought \$8 to pay for his share. All the logs were burned that night, so how should Larry and Mo split up the \$8?

In one box are ten pairs of black gloves and ten pairs of brown gloves, and in another box are ten pairs of black socks. Assume that gloves and socks are drawn from the boxes at random. What is the fewest number of draws (gloves plus socks) needed to be certain you have selected one pair of gloves and one pair of socks of the same color, that is, all four black or all four brown?

16

20

24

8

aces in the columns below, so that four rows and columns result and such that no two similar cards (in value or suit) appear in the same row or column.

17

21

5

9

8



22

A diagram showing a sphere of radius 3 inches. The sphere is in contact with a horizontal plane at point C. It is also in contact with a wedge that has a 60-degree angle at its top. The wedge's top surface is 1 inch below the horizontal plane. The sphere touches the wedge at points A and B. The horizontal distance from the vertical line passing through C to the vertical line passing through B is labeled as x inches.

6

19

$$\lim_{n \rightarrow \infty} \frac{F_n + 1}{F_n}$$

23

27

31