STUDENT NAME: _____

A21)

Marita purchased an item for 45% off the original price, plus an additional 20% off the sale price. She also had a $5-off coupon, which the salesclerk applied after these two discounts. Marita's final purchase price for the item was $50. Assuming she paid no sales tax, what was the original price of the item Marita purchased?

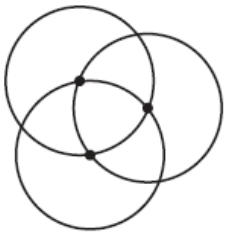
A22)

If two different students are randomly selected from a class of 12 boys and 8 girls, what is the probability that both students are girls? Express your answer as a common fraction.

A23)

A pharmacist must mix 12 fl oz of cough syrup that contains 25% active ingredient with flavored syrup that contains no active ingredient. How many fluid ounces of flavored syrup must the pharmacist add to create a mixture containing 10% active ingredient?

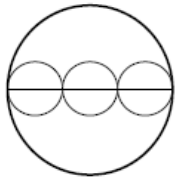
A24)



Three congruent, coplanar circles overlap so that each center lies on the other two circles. The diameter of each circle is 8 cm. What is the area of the triangle formed by connecting the centers of the circles? Express your answer in simplest radical form.

A25)

The centers of three congruent small circles are collinear, and their diameters form the diameter of the large circle, shown, whose area is 81π units^2. What is the circumference of one of the smaller circles? Express your answer in terms of π.



A26)

Sal collected data on all her family members who were born in the last half of the 20th century. Their birth years are shown in the stem-and-leaf plot. What is the positive difference between the median and the mode of these data?

195	4 4 7 9
196	0 2 3 3 4 4 5 5 5 6 7 8 8 9
197	0 0 4 4 4 4 8 9
198	1 6
199	2 4 5 7

Key: 195|4 = 1954

A27)

In a game that lasts 48 minutes, exactly 6 players from each team are on the field at all times. Throughout the game, players are substituted so that 8 players on a team each play an equal amount of time. How many minutes is each of the 8 players on the field during the game?

A28)

How many different three-member teams can be formed from a group of six students?

A29)

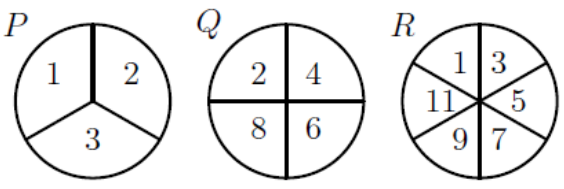
The square root of the quantity 3 less than twice a number is equal to 3. What is the number?

A30)

Bailey said to Kaylee, "If you gave me two of your marbles, I'd have twice as many as you'd have." And Kaylee responded, "If you gave me three of your marbles, I'd have three times as many as you'd have." What is the difference between the number of marbles that Bailey and Kaylee have?

A31)

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



A32)

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?

A33)

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?

A34)

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

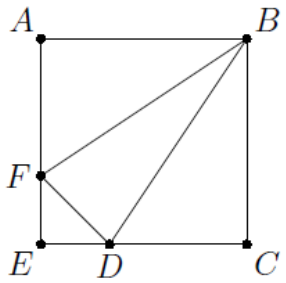
$$\begin{array}{cccc} & A & B & A \\ \times & & C & D \\ \hline C & D & C & D \end{array}$$

A35)

The students in Mr. Neatkin's class took a penmanship test. Two-thirds of the boys and $\frac{3}{4}$ of the girls passed the test, and an equal number of boys and girls passed the test. What is the minimum possible number of students in the class?

A36)

In square $ABCE$, $AF = 2FE$ and $CD = 2DE$. What is the ratio of the area of $\triangle BFD$ to the area of square $ABCE$?



A37)

A square and a circle have the same area. What is the ratio of the side length of the square to the radius of the circle?

A38)

In a room, 2/5 of the people are wearing gloves, and 3/4 of the people are wearing hats. What is the minimum number of people in the room wearing both a hat and a glove?

A39)

Hui is an avid reader. She bought a copy of the best seller *Math is Beautiful*. On the first day, she read 1/5 of the pages plus 12 more, and on the second day she read 1/4 of the remaining pages plus 15 more. On the third day she read 1/3 of the remaining pages plus 18 more. She then realizes she has 62 pages left, which she finishes the next day. How many pages are in this book?

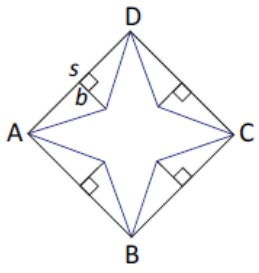
A40)

Everyday at school, Jo climbs a flight of 6 stairs. Joe can take the stairs 1, 2, or 3 at a time. For example, Jo could climb 3, then 1, then 2. In how many ways can Jo climb the stairs?

A41)

For what value of m does $\frac{1}{m} + \frac{1}{2m} = 6$? Express your answer as a common fraction.

A42)



Square ABCD, shown here, has sides of length s units. A star is formed, creating four congruent isosceles triangles, each with a height of b units. What is the area of the star in terms of s and b?

A43)

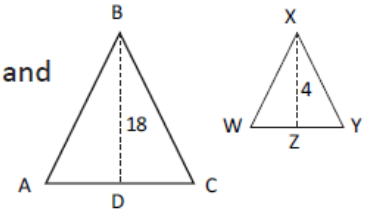
A pasture with an area of 25 hectares is enclosed using 2 km of fencing. Another pasture is to be enclosed. For the second pasture, how many hectares of land can 8 km of fencing enclose if the two fenced areas are similar?

A44)

Tim drove at an average rate of 30 mi/h, and Kim drove at an average rate of 40 mi/h for three times as long as Tim. Together they drove a total of 225 mi. How far did Tim drive?

A45)

Triangle ABC with an area of 243 cm^2 is similar to ΔWXY. If BD = 18 cm and XZ = 4 cm, what is the length of segment WY?

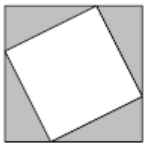


A46)

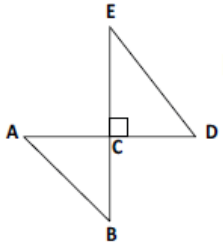
At Euclid Middle School there are 33 students in the chorus, 45 students in the band and 21 students in the orchestra. Fifteen students are in both the band and chorus, 9 are in both orchestra and chorus, 4 are in the band and orchestra and 2 students are in all three. How many students are in the orchestra only?

A47)

If the vertices of the smaller square divide each side of the larger square in the ratio of 2:1, in the figure shown, what percentage of the larger square is shaded? Express your answer to the nearest whole number.

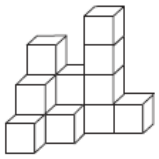


A48)



In the figure shown, point C is the midpoint of segment AD, and BC = $\frac{2}{3}$ EC. If AD = 10 units, and the area of ΔCDE is 30 $units^2$, how long is segment AB? Express your answer in simplest radical form.

A49)



Gerard glues together 14 bricks to form the solid shown. Each brick is a cube with edge length 1 cm. Adjacent bricks are glued together so that faces entirely overlap. What is the surface area of Gerard's solid, including the bottom face?

A50)

A line contains the points P(1, 3) and Q(17, 43). How many points on this line lie strictly between points P and Q and have two integer coordinates?