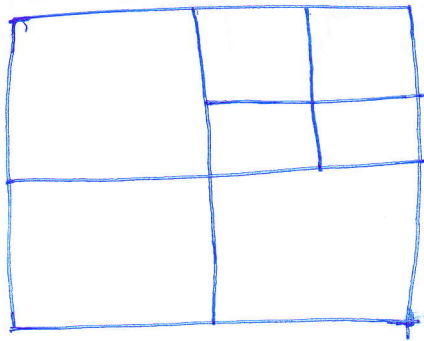


Q1 If the cost to make a plastic square is \$2 and
(a) the cost of a plastic triangle is \$1.50. Write
an equation that computes the ~~the~~ total cost
of making arbitrary number of plastic squares and
plastic triangles.

(b) If the side of the above square is 10 cm. And the
height of the triangle is 15 cm, what is the base
of the triangle? Assume cost of a square or a triangle
is proportional to the area.

Q2 In the following square blocks, what is the probability that if you randomly pick a square block, that it is a small square block. Area of the square block doesn't affect the probability of picking.



(b) If the probability that a juggler will drop a ball in each of 4 different juggling sessions is $\frac{1}{10,000}$, what is the probability that ~~he~~ ~~on~~ on another day, shortly after this session, ~~he~~ he will drop no balls in 3 consecutive juggling sessions?

Q3. A city has a law that number of bedrooms in the houses should be one less than number of people living in the house (for each house). Houses with zero bedrooms (e.g. just a room + kitchen) are allowed to be constructed. A street in the city has 2 families of 5 people, 3 families of 4 people and one single person family. What is the average number of bedrooms for the houses on that street, assuming no other families or houses exist on that street?

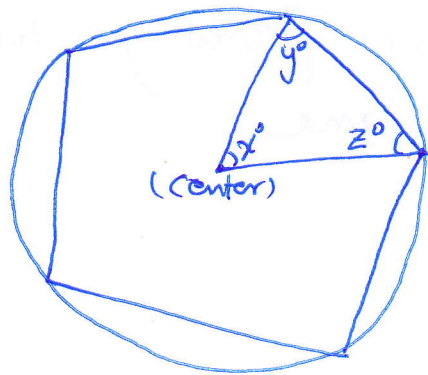
Q4 A bag has 10 blue balls and 10 red balls.

A kid picks out 2 balls from the bag and does not put them back. What is the probability that the third ball picked will be a red ball?

Q5 If a sales person has \$100K base salary and 2% commission on all sales that he does, and in a given year, he made total salary of \$200K, how many dollars of sales he should do next year, so that he effectively gets a 5% raise in his total salary?

Q6. If a planet in a galaxy has a radius of 2000 km and it grows in volume by 10% for 3 consecutive years and then shrinks by 10% ~~for the~~ in each of the following three years, what would be its radius at the end of the sixth year?

Q7
(a)



A pentagon with equal sides is inscribed inside the given circle. Find x° , y° , z° .

(b) Find $\sin x^\circ$, $\cos y^\circ$ and $\tan z^\circ$ if the radius of the circle is 10 cm.

Q8. Find the feasible region of the following two equations. Use a co-ordinate plane

$$|x| + 1 \leq 2$$

$$y \geq 3$$

Q. 9 In a jungle in the Amazon's river valley there are 3 bananas per monkey and 25 monkeys per hyena (a type of wolf). An amazonian red Indian counted bananas and monkeys and he found 10,000 of them. Now he forgot of the 10,000, how many were monkeys and how many were bananas. Can you help him find out? If a hyena eats 1 monkey a week, in how many weeks would there be no more monkeys?

Q10 Find x and y . Use the $\sin$, $\cos$, $\tan$ tables.

