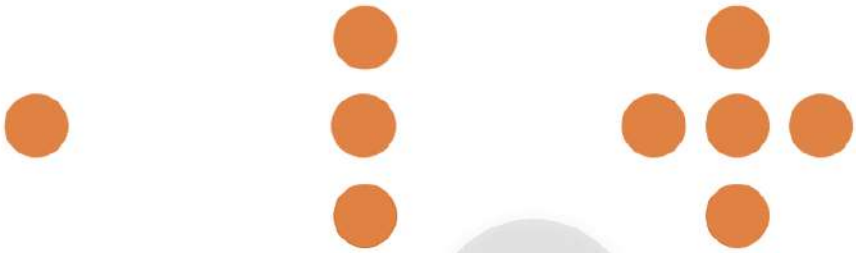
SAMPLE PAST YEAR GEP SELECTION TEST MATHS QUESTIONS

Q1.



Pattern 1 Pattern 2 Pattern 3

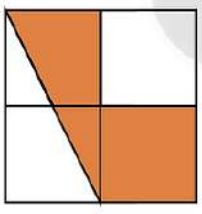
How many ● does the 20th pattern have?

Q2. Mr Chua gave some balloons to some children. If he gives each child 5 balloons, he will have none left. If he gives each child 2 balloons, he will have 30 balloons left. How many children does he have?

Q3. Rani had 4 black shirts and 8 white shirts. After she threw away some white shirts, the number of black shirts was $^{2}/_{3}$ of the remaining shirts. How many white shirts where thrown away?

Q4. A number of trees are planted in a straight line at equal distances from each other. The distance between every 2 trees is 8 m. The distance between the first and last tree is 104 m. How many trees are there in total?

Q5. What fraction of the figure is shaded?



Q6. A teacher gives 126 stickers to 20 students. Each boy receives 6 stickers while each girl receives 7 stickers. How many girls are there?

Answers:

Q1.

Pattern 1 has 1 dot, Pattern 2 has 3 dots and Pattern 3 has 5 dots. There is an increase of 2 dots as the pattern number increase. Thus for the 20^{th} pattern, there will be a total of 39 dots

(20^{th} pattern means an increase of 19 pattern numbers and 19 x 2 = 38. Plus 1 dot from Pattern 1 gives you 39 dots)

Q2.

If Mr Chua gives each child 5 balloons, he will have none left. From this we know that the total number of balloons would be in multiples of 5.

If Mr Chua gives each child 2 balloons, he will have 30 balloons left. From this we know that the total number of balloons will be more than 30 balloons.

Using Math Modelling, we can draw the possibilities.

Number of children	Total number of balloons if each child receives 5 balloons	Total number of balloons if each child receives 2 balloons
6	30	12 + 30 = 42
7	35	14 + 30 = 44
8	40	16 + 30 = 46
9	45	18 + 30 = 48
10	50	20 + 30 = 50
11	55	22 + 30 = 52
12	60	12 + 30 = 54

From the above table, we can conclude that total number of balloons were 50 and there are 10 children.

Or we can let x be the number of children. And let y be the total number of balloons.

When Mr Chua gives each child 5 balloons, he will have none left.

$y - 5x = 0$

When Mr Chua gives each child 2 balloons he will have 30 balloons left

$y - 2x = 30$

Substitute y into the equation and we get

$5x = 30 + 2x$

$3x = 30$ and $x = 10$ children

Q3.

After Rani threw away some white shirts, the number of black shirts was 2/3 of the remaining shirts. This mean that 4 black shirts represent 2/3 of the total number of shirts she has in total after throwing after the unknown number of white shirts.

Therefore, after throwing away the white shirts, we know that the total number of shirts remaining is 6 shirts (4 divided by 2/3 = 6)

Since there were 4 black shirts, this means there were 2 white shirts remaining and therefore number of white shirts thrown away is 6. (8-2=6)

Q4.

Take 104m divided by 8m gives us 13. But 13 is not the total number of trees. Remember to add the first tree to give the final answer of 14 trees in total

Insert picture

Q5.

From the diagram, we can see that ½ of the figure is shaded. The orange triangle is ½ of the rectangle (2 squares) and 1 of the remaining 2 squares is shaded orange.

Q6.

We know that there are a total of 126 stickers and 20 students

Let x be boys and y be girls. Therefore $x + y = 20$ or $x = 20 – y$.

While $6x + 7y = 126$.

Substitute x into the equation and we get

$6(20 – y) + 7y = 126$

$120 – 6y + 7y = 126$

$y = 6$

Thus we know there are 6 girls.