Elementary School Math League Tournament
2016

Relay Round

Team # _____ School: _____

Question 1:

The point A(1, 2) is reflected in the y-axis. Then the new point is translated 5 units up and 8 units to the left. What is the sum of the final coordinates?

Le point A (1, 2) est réfléchi dans l'axe y. Ensuite, le nouveau point est traduit 5 unités vers le haut et 8 unités vers la gauche. Quelle est la somme des coordonnées finales?

1st Try =_____	2nd Try =_____

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Question 2:

The first 13 positive numbers that are divisible by 13 are written on the board. Find the largest of these numbers that is also divisible by 2.

Les 13 premiers nombres positifs divisibles par 13 sont écrits sur le tableau. Trouvez le plus grand de ces nombres qui est également divisible par 2.

1st Try =_____	2nd Try =_____

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Question 3:

If the ratio of Sandra`s age today to what it was 6 years ago is 3:2, then what will be her age in 4 years?

Si le ratio de l'âge de Sandra aujourd'hui à ce qu'il était il ya 6 ans est 3: 2, alors quel sera son âge en 4 ans?

1st Try =_____	2nd Try =_____

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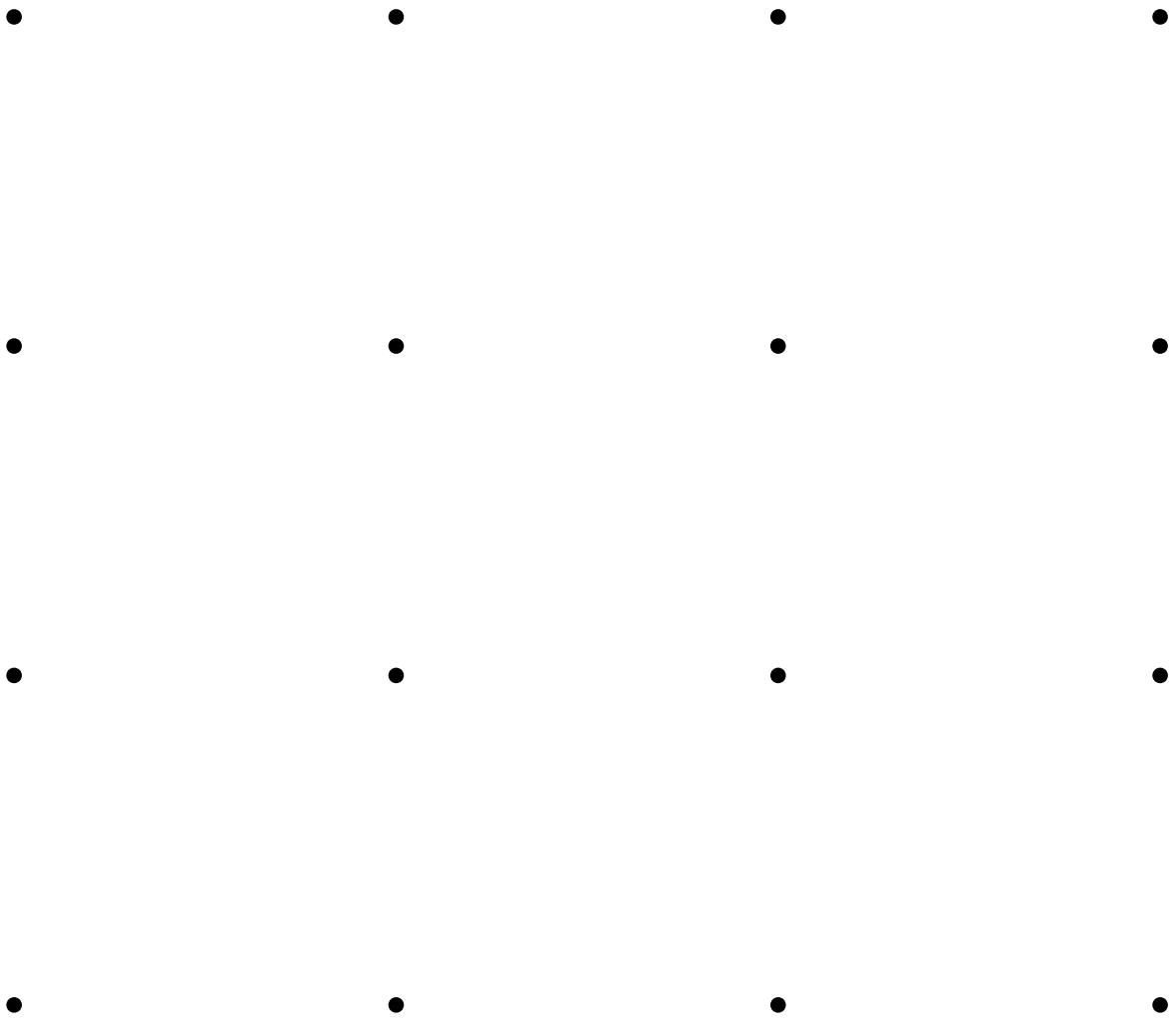
Question 4:

How many squares can be drawn using the dots below as the vertices? Remember squares can be drawn at a slant too.

Combien de carrés peuvent être dessinés en utilisant les points ci-dessous comme les sommets? Rappelez-vous que les carrés peuvent être dessinés obliquement.



1st Try =_____	2nd Try =_____

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Question 5:

Jessie has some chickens and rabbits. There are 30 heads and 76 legs in all. How many rabbits does Jessie have?

Jessie a des poulets et des lapins. Il ya 30 têtes et 76 jambes en tout. Combien de lapins a Jessie?

1st Try =_____	2nd Try =_____

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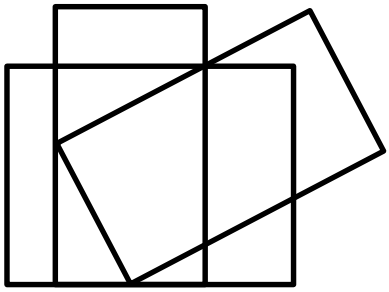
Question 6:

Combien y a-t-il de quadrilatères?

How many quadrilaterals are there?



1st Try =_____	2nd Try =_____

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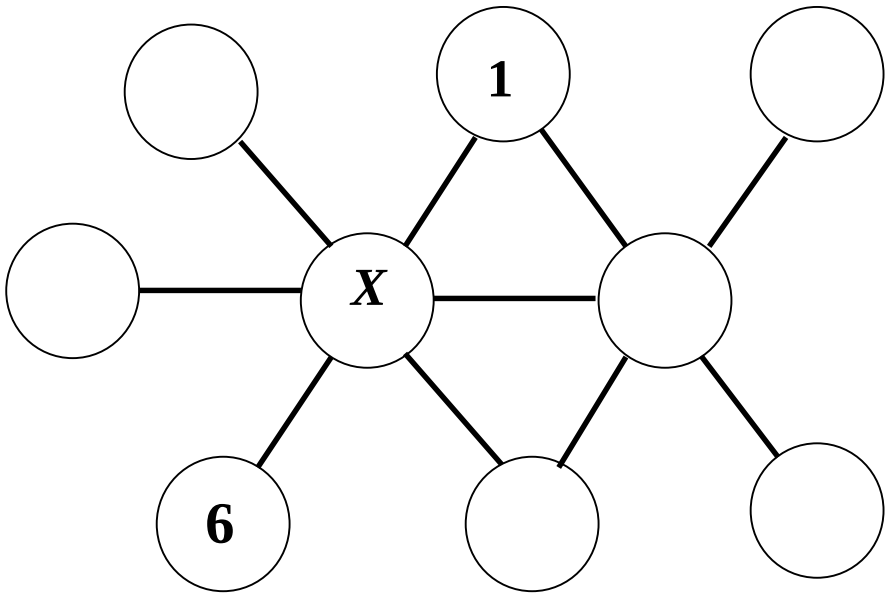
Question 7:

In the diagram, each of the integers 1 through 9 is to be placed in one circle so that the integers in every straight row of three joined circles add to 18. The 6 and 1 have been filled in. The value of the number represented by x is



On doit placer les nombres entiers de 1 à 9 dans les cercles, un par cercle, de manière que les nombres de trois cercles formant une ligne droite aient toujours une somme de 18. On a déjà placé le 1 et le 6. Quelle est la valeur du nombre représenté par x ?

1st Try =_____	2nd Try =_____

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Question 8:

What is the sum of the first 100 positive odd integers?

Quelle est la somme des 100 premiers entiers impairs positifs?

1st Try =_____	2nd Try =_____

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Answers

1. -2

2. 156

3. 22

4. 18

5. 8

6. 17

7. x = 7

8. 10000

5. 8 rabbits

Solution: First assume Jessie has 30 chickens and no rabbits. In that case, there are 60 legs in all (2 x 30 = 60). There are 16 extra legs. 8 rabbits will provide the extra(compared with rabbits' legs) 16 legs. Therefore there are 22 chickens (30-8=22).

7.

5 3 1
2 7 9
6 8 4

1st Try =_____	2nd Try =_____

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8. The first positive odd integer is 1, the second is 2(2) − 1 = 3, the third is 2(3) − 1 = 5, the fourth is 2(4) − 1 = 7. That is, the one hundredth positive odd integer is 2(100) − 1 = 199 and the sum that we are being asked to determine is 1 + 3 + 5 + · · · + 195 + 197 + 199.

Solution 1 Since each odd integer can be expressed as the sum of two consecutive integers, we rewrite 1 + 3 + 5 +· · ·+ 195 + 197 + 199 as 1 + (1 + 2) + (2 + 3) + · · ·+ (97 + 98) + (98 + 99) + (99 + 100). Rearranging the terms in the previous sum, we get (1 + 2 + 3 + · · · + 98 + 99 + 100) + (1 + 2 + 3 + · · · + 97 + 98 + 99). 2014 Gauss Contest Solutions Page 17 The sum in the first set of brackets, 1 + 2 + 3 + · · · + 98 + 99 + 100 is equal to 5050. The sum in the second set of brackets, 1 + 2 + 3 + · · · + 98 + 99 is 100 less than 5050 or 4950. Therefore, 1 + 3 + 5 + · · · + 195 + 197 + 199 = 5050 + 4950 = 10 000.

1st Try =_____	2nd Try =_____