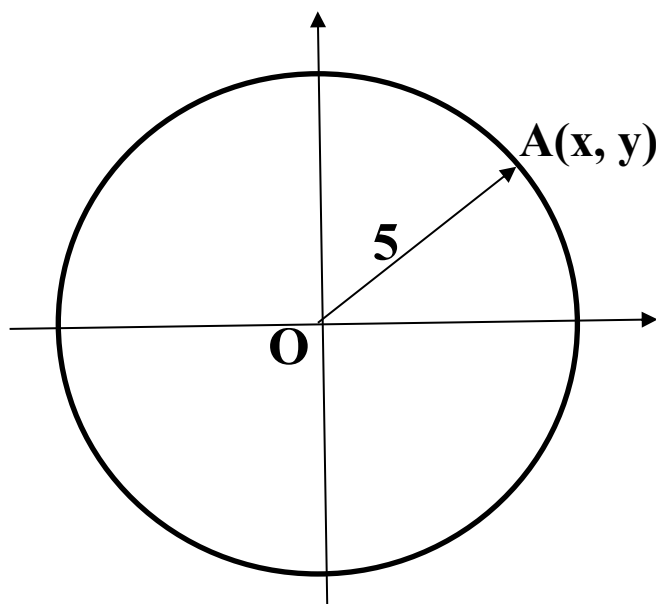


Team # _____

Question 1:

The circle centered at O has a radius equal to 5. The coordinates of O are $(0, 0)$ and those of A are (x, y) . If the ratio of $x:y = 0.75$, what is the value of x ?

Le cercle centré au point O a un rayon égal à 5. Les coordonnées du centre O sont $(0, 0)$ et ceux du point A sont (x, y) . Quelle est la valeur de x , si le rapport de $x:y = 0.75$?

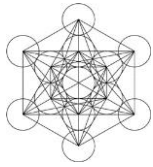


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KML Junior Tournament– May 11, 2018

Team Round



Team # _____

Question 2:

A 2 cm cube ($2 \text{ cm} \times 2 \text{ cm} \times 2 \text{ cm}$) of silver is worth \$40.
How much is a 3 cm cube ($3 \text{ cm} \times 3 \text{ cm} \times 3 \text{ cm}$) of silver worth?

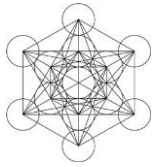
Un cube en argent de 2 cm de côté ($2 \text{ cm} \times 2 \text{ cm} \times 2 \text{ cm}$) coûte 40 \$. Quel est le prix, en dollars, d'un cube en argent de 3 cm de coté ($3 \text{ cm} \times 3 \text{ cm} \times 3 \text{ cm}$)?

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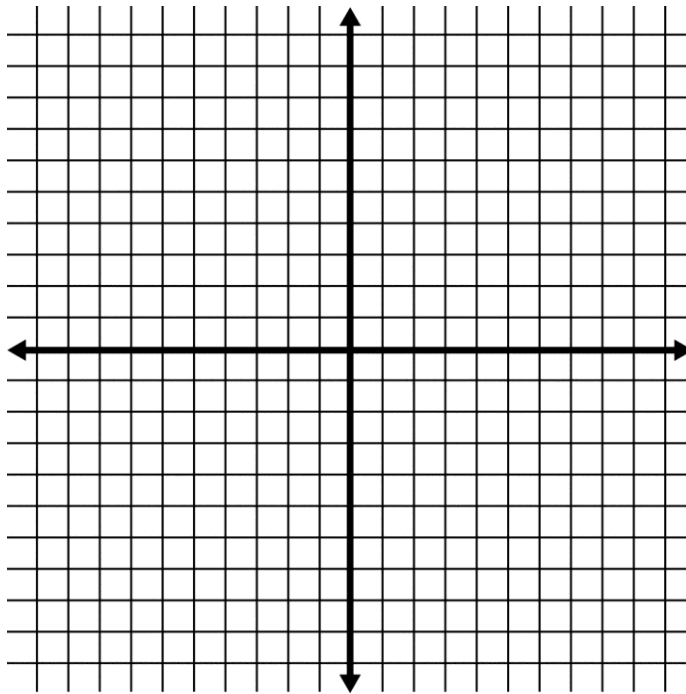


Team # _____

Question 3:

Two points are plotted on the Cartesian Plane, at $G(7, 8)$ and $H(-2, -4)$, what is the distance between them? *Hint: Can the rise and the run be used to find distance?*

Deux points sont tracés sur le plan cartésien, à $G(7, 8)$ et $H(-2, -4)$, quelle est la distance entre eux?

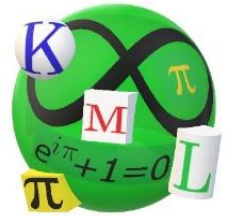
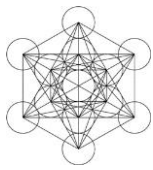


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Team # _____

Question 4:

A total of 29 students in a class were surveyed about sports. Of these students there are 15 who play soccer, 10 who play hockey, and 12 students who play neither of these sports. How many students in this class play both sports?

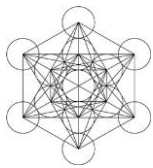
Un total de 29 étudiants dans une classe ont répondu à un sondage sur le sport. Parmi ces étudiants, 15 élèves jouent au soccer, 10 élèves jouent au hockey et 12 élèves ne jouent à aucun de ces sports. Combien d'élèves dans cette classe jouent à la fois au soccer et au hockey?

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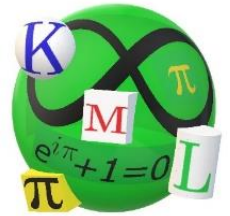
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KML Junior Tournament– May 11, 2018

Team Round



Team # _____

Question 5:

What is the sum of the two integer solutions of:

$$x + \sqrt{3x - 2} = 4$$

Guess and check can be just as fast as using algebra.

Quelle est la somme des deux solutions entières de

$$x + \sqrt{3x - 2} = 4$$

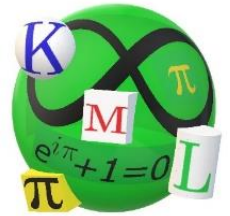
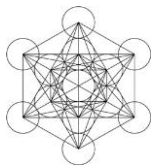
Devinez et vérifiez peut être aussi rapide que l'utilisation de l'algèbre.

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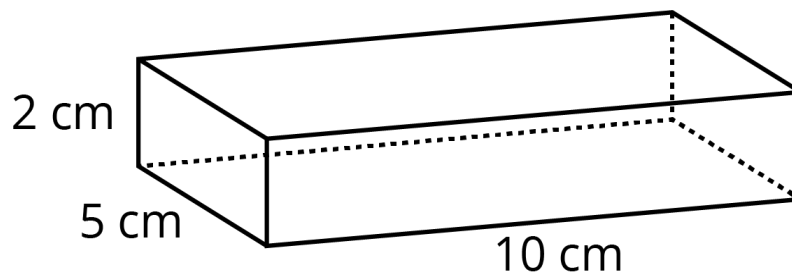


Team # _____

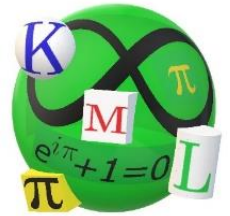
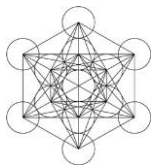
Question 7:

What is the total surface area of the rectangular prism shown?

Quelle est la superficie totale du prisme rectangulaire montré?



| | | | |
|---|---|---|---|
| 5 | 3 | 2 | 1 |
| | | | |

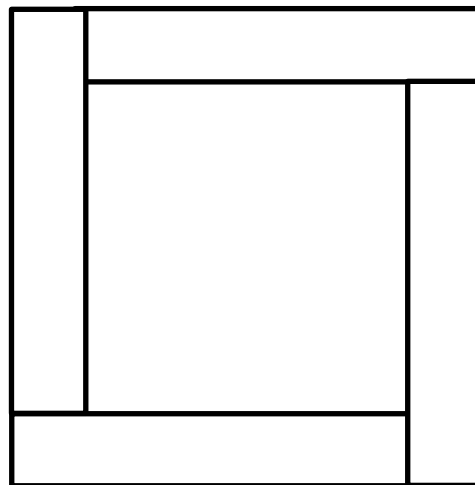


Team # _____

Question 8:

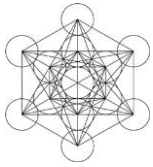
Four congruent rectangles and a square are assembled without overlapping to form a large square, as shown. Each of the rectangles has a perimeter of 40 cm. What is the total area (cm^2) of the large square on the outside?

Dans la figure ci-contre, quatre rectangles identiques et un carré ont été placés, sans chevauchement, pour former un grand carré. Chacun des rectangles a un périmètre de 40 cm. Quel est l'aire totale (cm^2) du grand carré à l'extérieur?



5 3 2 1

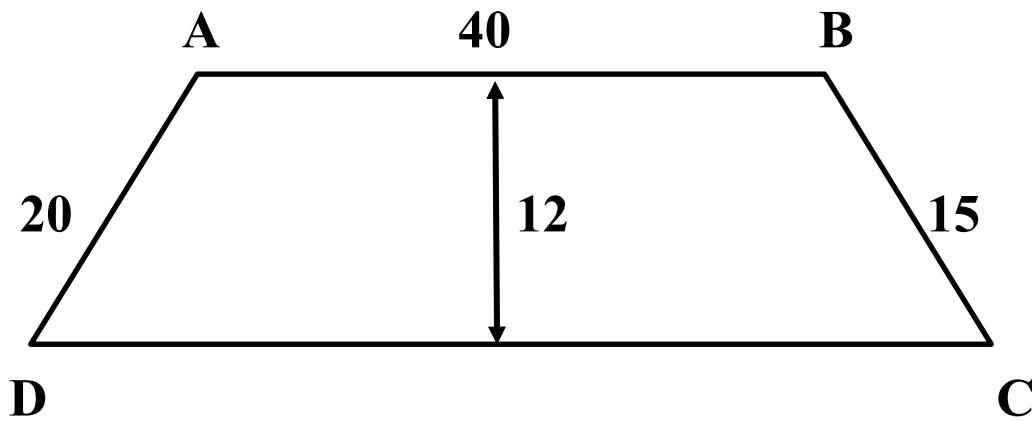
| | | | |
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Team # _____

Question 9:

Find the area of the trapezoid ABCD, when $AD = 20$, $AB = 40$, $BC = 15$, and the altitude is 12.

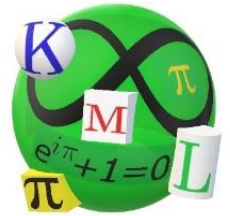
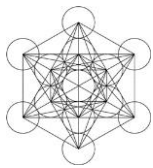


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Team Round

Team # _____

Relay 1:

1. In the Fibonacci sequence, the first two numbers are 1 and 1, and each number after those is the sum of the two previous numbers. **A** is the sum of the squares of the fourth and the fifth Fibonacci numbers.

Write the value of **A** in Box # 1 of the Relay Answer Sheet.

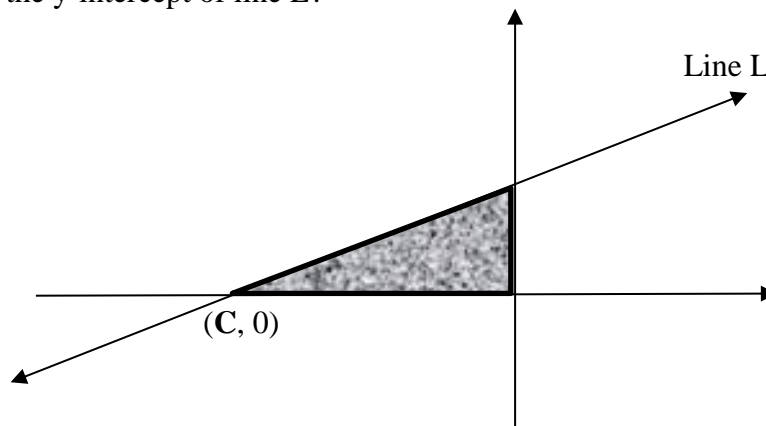
2. **B** is the positive difference between the median and the mean of this set of numbers: 100, 41, 60, 25, **A**.

Write the value of **B** in Box # 2 of the Relay Answer Sheet.

3. $\frac{C-2}{C+1} = \frac{B}{8}$;

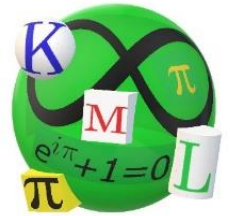
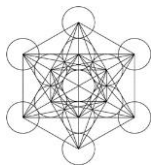
Write the value of **C** in Box # 3 of the Relay Answer Sheet.

4. The line **L** crosses the x-axis at $(C, 0)$. The area of the shaded region is 27. What is the y-intercept of line **L**?



Write the value of **D** in Box # 4 of the Relay Answer Sheet.

| | | | |
|---|---|---|---|
| 5 | 3 | 2 | 1 |
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Team # _____

Relai 1:

1. Dans la suite de Fibonacci, les deux premiers termes sont 1 et 1, chaque terme est la somme des deux termes qui le précèdent. **A** est la somme des carrés du quatrième et du cinquième termes de la suite de Fibonacci.

Écrivez la valeur de **A** dans la Boite # 1 de la Feuille de Rèponses de Relai.

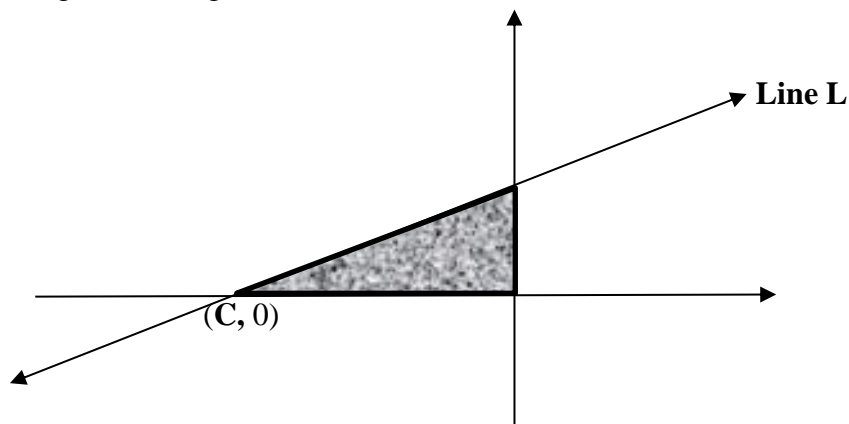
2. **B** est la différence positif entre la médiane et la moyenne de cet ensemble de nombres: 100, 41, 60, 25, A

Écrivez la valeur de **B** dans la Boite # 2 de la Feuille de Rèponses de Relai.

3.
$$\frac{C-2}{C+1} = \frac{B}{8}$$

Écrivez la valeur de **C** dans la Boite # 3 de la Feuille de Rèponses de Relai.

4. La ligne L a abscisse à l'origine au (C, 0). La zone de la région ombrée est 27. Quelle est l'ordonnée à l'origine de la ligne L?



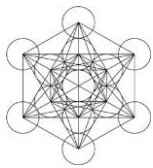
Écrivez la valeur de **D** dans la Boite # 4 de la Feuille de Rèponses de Relai.

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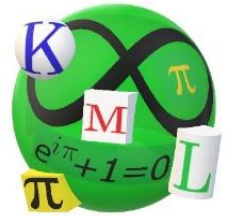
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KML Junior Tournament– May 11, 2018

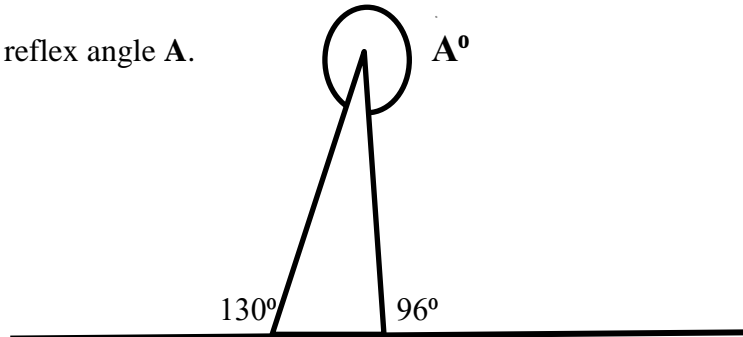
Team Round



Team # _____

Relay 2:

1. Find the reflex angle **A**.



Write the value of **A** in Box # 1 of the Relay Answer Sheet.

2. **B** is the radius of a circle with area, **A**. Use 3.14 for π .

Write the value of **B** in Box # 2 of the Relay Answer Sheet.

3. A local fair charges an entry fee of $\$(\mathbf{B} + 5)$ and \$1.75 per ride ticket. Mrs. Swaine has \$50 to spend. **C** is the maximum number of tickets Mrs. Swaine can purchase.

Write the value of **C** in Box # 3 of the Relay Answer Sheet.

4. **D** is the larger zero(root) of: $x^2 - 9x + \mathbf{C} = 0$.

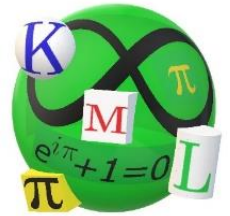
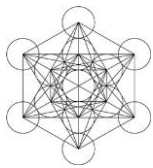
Write the value of **D** in Box # 4 of the Relay Answer Sheet.

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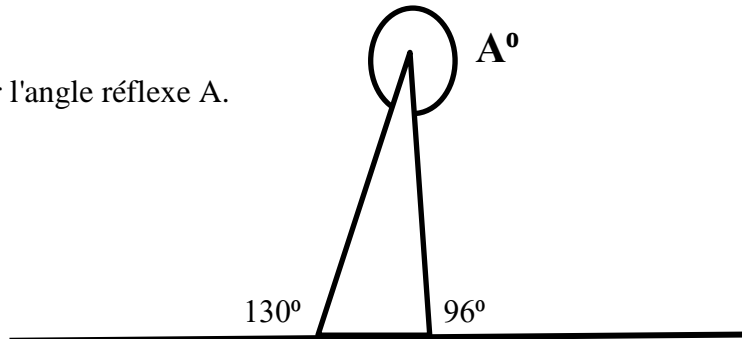
1



Team # _____

Relai 2:

1. Trouver l'angle réflexe **A**.



Écrivez la valeur de **A** dans la Boîte # 1 de la Feuille de Rèponses de Relai.

2. **B** est le rayon d'un cercle de l'aire, **A**. Utilisez 3.14 pour π

Écrivez la valeur de **B** dans la Boîte # 2 de la Feuille de Rèponses de Relai.

3. Une foire locale a un droit d'entrée de $\$(\mathbf{B} + 5)$ et \$1,75 par billet. Mme Swaine a \$50 à dépenser. **C** est le nombre maximum des billets que Mme Swaine peut acheter.

Écrivez la valeur de **C** dans la Boîte # 3 de la Feuille de Rèponses de Relai.

4. **D** est la plus grande racine de l'équation quadratique: $x^2 - 9x + \mathbf{C} = 0$.

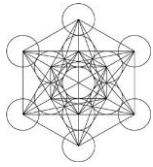
Écrivez la valeur de **D** dans la Boîte # 4 de la Feuille de Rèponses de Relai.

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KML Junior Tournament– May 11, 2018

Team Round



Team # _____

Relay 3:

1. **A** is the y-intercept of the line that passes through the points (2, 4) and (4, 0).

Write the value of **A** in Box # 1 of the Relay Answer Sheet.

2. The operation “ ∇ ” is defined by $(a, b)\nabla(c, d) = ac + bd$. For example, $(1, 2)\nabla(3, 4) = (1)(3) + (2)(4) = 11$. **B** is the value of $(3, 1)\nabla(\mathbf{A}, 2)$.

Write the value of **B** in Box # 2 of the Relay Answer Sheet.

3. **C** is the sum of the digits of the **B**th term in the sequence: -8, -1, 6, 13, ...

Write the value of **C** in Box # 3 of the Relay Answer Sheet.

4. $\mathbf{D} = \sqrt{4 + 8\sqrt{9 + \sqrt{\mathbf{C} + 35}}}$

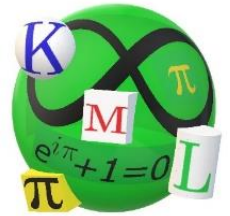
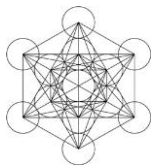
Write the value of **D** in Box # 4 of the Relay Answer Sheet.

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Team # _____

Relai 3:

1. **A** est l'ordonnée à l'origine de la ligne qui passe à travers les points (2, 4) et (4, 0).

Écrivez la valeur de **A** dans la Boite # 1 de la Feuille de Rèponses de Relai.

2. L'opération “ ∇ ” est définie comme suit: $(a, b)\nabla(c, d) = ac + bd$.
Par exemple, $(1, 2)\nabla(3, 4) = (1)(3) + (2)(4) = 11$. **B** est la valeur de $(3, 1)\nabla(\mathbf{A}, 2)$.

Écrivez la valeur de **B** dans la Boite # 2 de la Feuille de Rèponses de Relai.

3. **C** est la somme des chiffres du **B**ème terme de la séquence: -8, -1, 6, 13, ...

Écrivez la valeur de **C** dans la Boite # 3 de la Feuille de Rèponses de Relai.

4.
$$\mathbf{D} = \sqrt{4 + 8\sqrt{9 + \sqrt{\mathbf{C} + 35}}}$$

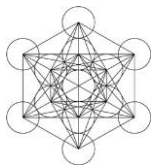
Écrivez la valeur de **D** dans la Boite # 4 de la Feuille de Rèponses de Relai.

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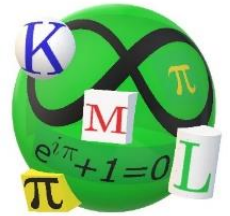
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KML Junior Tournament– May 11, 2018



Team Round

Team # _____

Relay # 1 - Answers

| | |
|----------|-----------|
| A | 34 |
| B | 11 |
| C | -9 |
| D | 6 |

TEAM # _____ School: _____

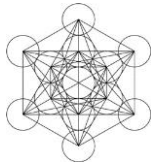
Relay # 1 - Answer Sheet

| | |
|----------|--|
| A | |
| B | |
| C | |
| D | |

| Regular points (max. 5) | + | Bonus Points (max. 6) | = | Total Points |
|-------------------------|---|-----------------------|---|--------------|
| | | | | |

Proctors Initials: _____

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KML Junior Tournament– May 11, 2018



Team Round

Team # _____

Relay # 2 - Answers

| | |
|----------|------------|
| A | 314 |
| B | 10 |
| C | 20 |
| D | 5 |

TEAM # _____ School: _____

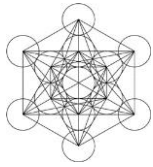
Relay # 2 - Answer Sheet

| | |
|----------|--|
| A | |
| B | |
| C | |
| D | |

| Regular points (max. 5) | + | Bonus Points (max. 10) | = | Total Points |
|-------------------------|---|------------------------|---|--------------|
| | | | | |

Proctors Initials: _____

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|--|--|--|--|
| | | | |
|--|--|--|--|



KML Junior Tournament– May 11, 2018

Team Round



Team # _____

Relay # 3 - Answers

| | |
|----------|-----------|
| A | 8 |
| B | 26 |
| C | 14 |
| D | 6 |

TEAM # _____ **School:** _____

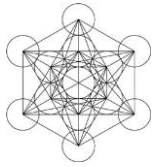
Relay # 3 - Answer Sheet

| | |
|----------|--|
| A | |
| B | |
| C | |
| D | |

| Regular points (max. 5) | + | Bonus Points (max. 10) | = | Total Points |
|-------------------------|---|------------------------|---|--------------|
| | | | | |

Proctors Initials: _____

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|---|---|---|---|
| 5 | 3 | 2 | 1 |
|---|---|---|---|



KML Junior Tournament– May 11, 2018

Team Round



Team # _____

Answers

1. 3

6. 32

2. \$135

7. 160

3. 15

8. 400

4. 8

9. 630

5. 11

5

3

2

1