

Team Round

Team # _____

Question 1:

$\triangle ABC$ has vertices $A(2, 4)$, $B(6, 4)$, and $C(4, 10)$.
If $\triangle ABC$ is reflected over the line $x = 8$, what is
the sum of the new x -coordinates of A' , B' , and C' ?

5	3	2	1
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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Question 2:

A 40-foot by 10-foot rectangular garden is enclosed by a fence. To make the garden larger, while using the same amount of fencing, its shape is changed to a square. How many square feet larger than the old garden is the new garden?_

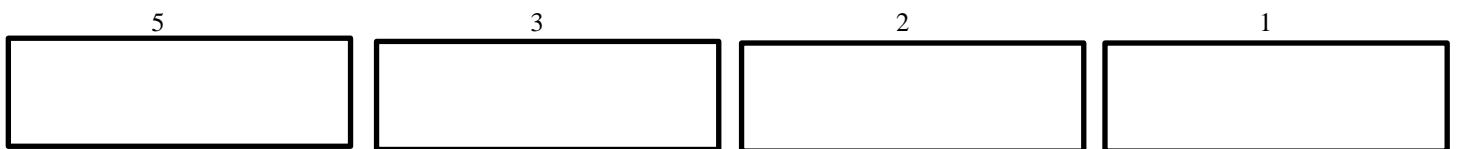
5	3	2	1
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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Question 3:

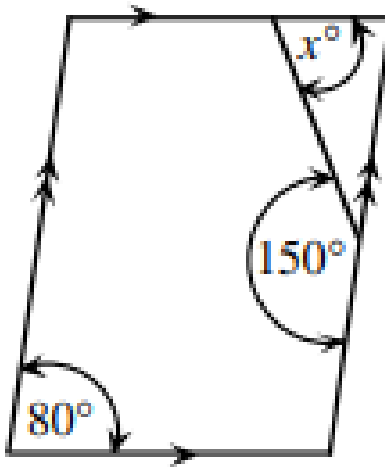
Rectangular tiles, which measure 6 by 4, are arranged without overlapping, to create a square. What is the minimum number of these tiles needed to make a square?



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Question 4:

In the parallelogram, what is the value of x ?



5	3	2	1

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Question 5:

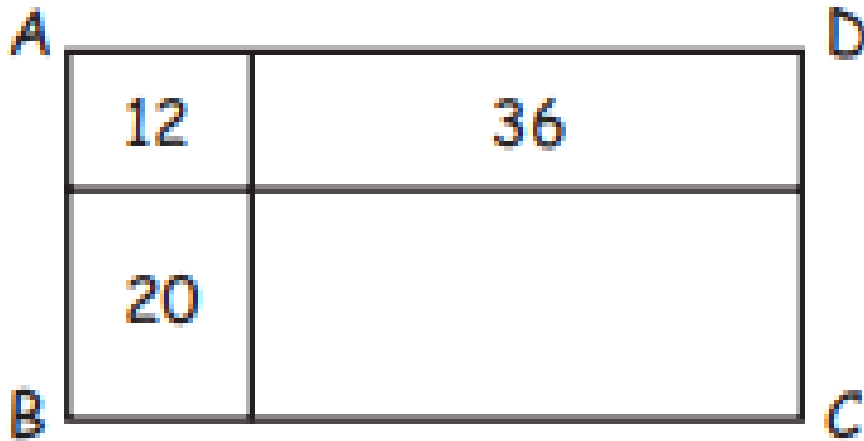
One of the following four-digit numbers is **not** divisible by 4: 3544, 3554, 3564, 3572, 3576. What is the product of the last two digits of this number?

5	3	2	1
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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Question 6:

In the figure, quadrilateral ABCD is a rectangle with integer side lengths. The areas of three smaller rectangles are given, in square units. What is the area of rectangle ABCD?



5 3 2 1

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Question 7:

If $a \diamond b = \frac{ab}{a+b}$ and $a \diamond 4 = 3$, what is the value of a ?

5

3

2

1

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Question 8:

The sum of three numbers is 98. The ratio of the first to the second is 2:3, and the ratio of the second to the third is 5:8. What is the value of the second number? _

5	3	2	1
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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Question 9:

The numbers 49, 29, 9, 40, 22, 15, 53, 33, 13, 47 are grouped in pairs so that the sum of each pair is the same. Which number is paired with 15?

5	3	2	1
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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Relay 1:

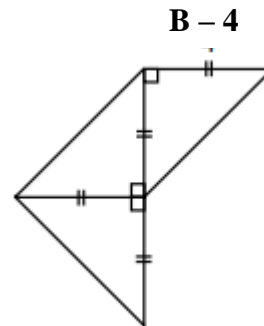
1. In a triangle with three distinct angle measures, the smallest angle measures 30° . The measures of the other two interior angles are each a whole number of degrees. **A** is the measure of the largest possible angle in the triangle.

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

2. The point $(7, 9)$ is on the line $\mathbf{B}x + 7y = \mathbf{A}$.

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

3. **C** is the area of this figure to the right.



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

4. The product of two whole numbers is **C**. **D** is the smallest possible sum of these two numbers.

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

5	3	2	1

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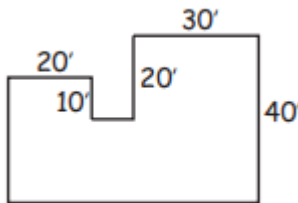
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Relay 2:

1. In a sequence of numbers, the first term is 500. Each new term is determined by dividing the previous term by 2 and then adding 10. For example, the second term is 260. **A** is the fourth term in the sequence.

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

2. The floor plan for a single-story house is shown. Each of the adjacent sides are perpendicular. **B** is the total area of the floor divided by 100 for the house plan shown below.



A - 20

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

3. A square has perimeter (**B** + 4). A rectangle has the same area as this square. If the width of the rectangle is 4, **C** is the length of the rectangle.

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

4. The sum of two numbers is **C**, and their difference is 7. **D** is the positive difference of the squares of these two numbers?

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

5	3	2	1

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Relay 3:

1. If $2x - 1 = 5$ and $3y + 2 = 17$, then $2x + 3y = \mathbf{A}$

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

2. $x^2 - 4x - \mathbf{A} = 0$. **B** is the positive x also known as a zero that makes this equation true.

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

3. $\mathbf{C} = \sqrt{13 + \sqrt{\mathbf{B} + \sqrt{4}}}$

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

4. If 3 donuts and **C** bagels together cost \$18, and 2 donuts and 3 bagels together cost \$13, **D** is the combined cost of 1 donut and 1 bagel.

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

5	3	2	1
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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Relay # 1 - Answers

A	119
B	8
C	24
D	10

TEAM # _____ School: _____

Relay # 1 - Answer Sheet

A	
B	
C	
D	

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

Proctors Initials: _____

5	3	2	1
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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Relay # 2 - Answers

A	80
B	20
C	9
D	63

TEAM # _____ **School:** _____

Relay # 2 - Answer Sheet

A	
B	
C	
D	

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

Proctors Initials: _____

5	3	2	1
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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Relay # 3 - Answers

A	21
B	7
C	4
D	5

TEAM # _____ **School:** _____

Relay # 3 - Answer Sheet

A	
B	
C	
D	

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

Proctors Initials: _____

5	3	2	1
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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Answers

1. 36

6. 128

2. 225

7. 12

3. 6

8. 30

4. 70°

9. 47

5. 20

5

3

2

1