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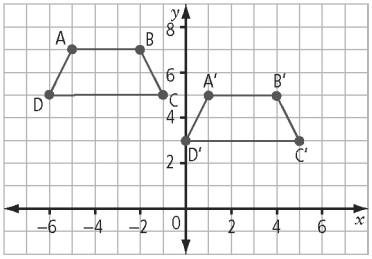
Final Exam Option 2 Written Response

Write your response in the space provided. Present your response in a well-organized way using complete sentences and correct units.

Use this information to answer #1.

Aniceto is discussing transformations with Maria.

1. Aniceto draws a trapezoid and its image.



a) Aniceto tells Maria that the image A'B'C'D' is a result of a transformation called a _____ .

b) Aniceto describes to Maria the transformation that changed ABCD to the image A'B'C'D'. What does he say?

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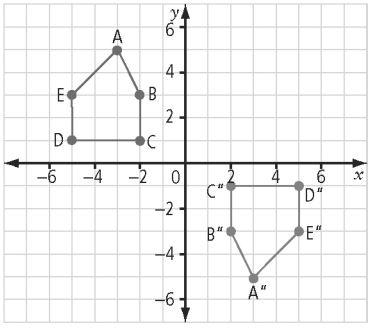
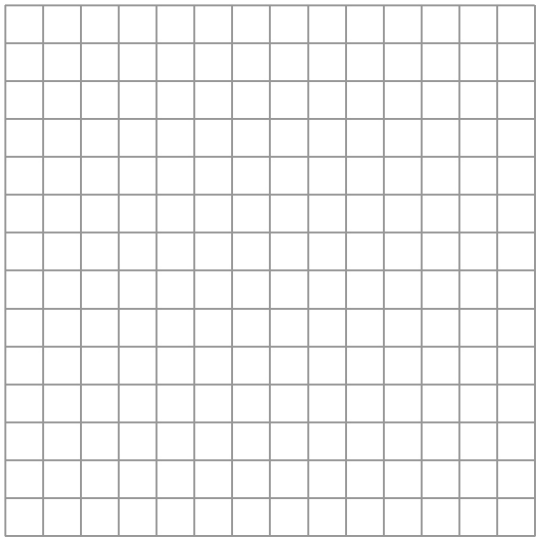
c) Aniceto and Maria are discussing how the pentagon ABCDE was changed to its image A"B"C"D"E". Aniceto said that ABCDE was reflected in the *x*-axis and then in the *y*-axis. Maria said ABCDE was reflected in the *y*-axis and then in the *x*-axis.



Who is correct? Justify your answer by drawing ABCDE and the images on the grid. Label your work.



d) Is there another type of transformation that will make ABCDE become the image A"B"C"D"E"? Explain.

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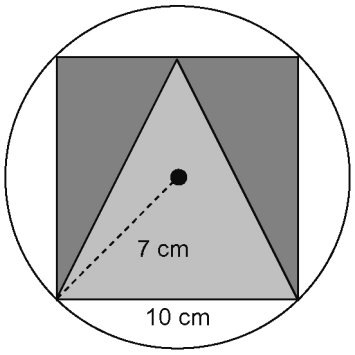
Use this information to answer #2.

We Make It Design Company is making a new logo for the soccer team's jerseys. The logo design includes a circle, a square, and triangles. The radius of the circle is 7 cm, and the side length of the square is 10 cm.



2. a) What is the circumference of the circle, to the nearest centimetre? Show your work.

b) What is the area of the large triangle? Show your work.

c) How much more fabric does the square require compared to the large triangle? Show your thinking.

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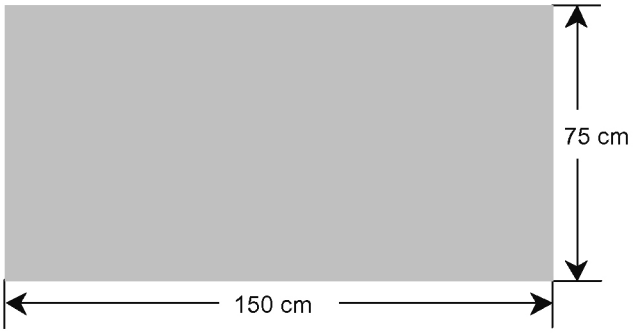
d) The designer will use a rectangular piece of blue cloth to cut out squares for the logo.



How many 10-cm by 10-cm squares can the designer cut from the cloth so as little as possible is wasted? Show your thinking.

e) The designer is adding trim around the edge of the circle in the logo. The trim costs $1.29 per package. Each package has 100 cm of trim. The designer needs enough trim for 15 circles, each with a radius of 7 cm. Using relative size estimation, estimate the number of packages and the cost for the trim, before tax. Show your thinking.

f) Calculate the actual number of packages and the cost, before tax.

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Use this information to answer #3.

Ben has advanced to the javelin-throwing finals. The table shows the distances for his first five throws.

Throw Number	Distance of Throw (m)
1	18
2	20
3	18
4	19
5	20

3. a) Determine the mean and median distance Ben threw the javelin in his first five throws. Show your work.

b) Ben will make seven throws altogether. His goal is for the total distance of all of his throws to be at least 130 m. If Ben throws his mean distance for the sixth and seventh throws, will he meet his goal? Show your work.

c) Write an equation showing total distance thrown at the end of any throw if the mean distance is thrown each time. Use *d* for total distance, in metres, and *t* for the throw number. Show your work.

d) Copy and complete the table of values for your equation.

t	***d***
0	
1	
2	
3	

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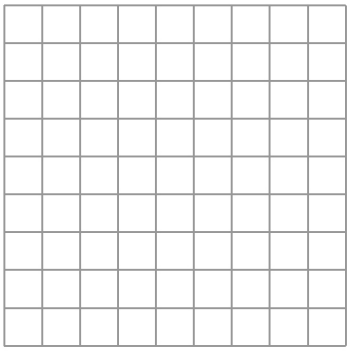
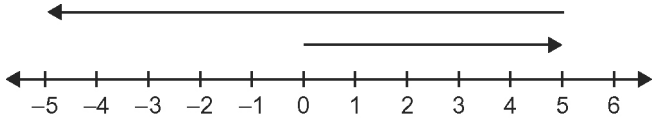
e) On a graph, plot the ordered pairs from your table of values. Write titles for the axes.



Use this diagram to answer #4.

Mathematics can be modelled in many different ways, such as using diagrams or manipulatives. These models can help us write equations, solve problems, or find answers to expressions. Use your knowledge of models to answer the following questions.

4. a) What addition is modelled by the number line?



b) What subtraction is modelled by the number line?

c) What is the solution modelled on the number line?

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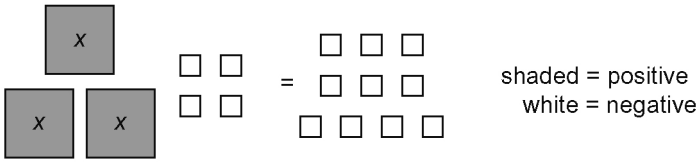
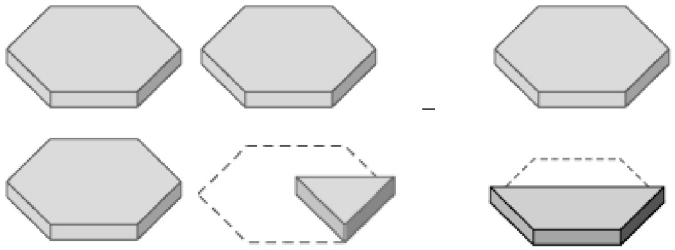
d) Describe in words what is being modelled by the diagram.



e) Write the equation modelled by the diagram. Then, solve it algebraically. Show all of your work.

f) What subtraction is being modelled by the pattern blocks?



g) Solve the subtraction by completing the model of the pattern blocks. Show a sketch here.

h) Solve the subtraction by determining a common denominator.