



grade

6

ASSESSMENT PREP

for

COMMON CORE MATHEMATICS

Tips and Practice for the Math Standards



- Practice Assessments
- Multiple-Choice Questions
- Open-Ended Questions
- Test-Taking Tips
- Diagnostic Information



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Introduction to the Teacher

The time has come to raise the rigor in our children’s mathematical education. The Common Core State Standards were developed to help guide educators and parents on how to do this by outlining what students are expected to learn at each grade level. The bar has been set high, but our students are up to the challenge.

More than 40 states have adopted the Common Core State Standards, and the school districts in those states are aligning their curriculums and state assessments to those standards. This workbook is designed to help you prepare your students for assessments based on the Common Core State Standards. It contains both multiple-choice and open-ended assessment questions that are similar to the types of questions students will encounter on their state assessments. We have also included test-taking tips and strategies that will help students perform well on these types of assessments.

Additionally, this book contains diagnostic information for the multiple-choice questions. This information will help you understand why your students selected particular incorrect answers. We believe that you will be able to use this information to identify the gaps in student knowledge, which will inform your future instruction.

We hope that this book will be a valuable resource for you in preparing your students for assessments that are aligned with the Common Core State Standards!

—Karise Mace and Christine Henderson



Test-Taking Strategies for Math Tests

Test anxiety affects many students. Here are some strategies you can teach your students to help alleviate the anxiety and help them become more relaxed test takers. We have also included a sample problem in which we highlight how these strategies might be used.

Multiple-Choice Tests

Tip #1: Read the problem thoroughly and determine the goal.

Anxious test takers have a tendency to read through problems quickly and then immediately scan the answer choices for what might be the correct answer. Encourage your students to be patient as they read through each problem so that they can determine what the problem is asking them to do. They may even wish to circle information that they think is important and underline the question.

Tip #2: Estimate the answer.

Students often “number surf.” That is, they “grab” the numbers they see in the problem and start operating on them in an attempt to get one of the answer choices. Encourage your students to use estimation to determine the reasonableness of an answer.

Tip #3: Use your estimate to quickly eliminate one or two of the choices.

Once students have calculated an estimate, they can almost always use it to eliminate one or two unreasonable choices. Encourage them to cross these out with their pencils.

Tip #4: Solve the problem by working forward or backward.

Some problems can be solved just as efficiently by working forward or backward. If students are unsure about how to use the information in the problem to get one of the answers, encourage them to start with one of the answers and work backward to see if they get the information in the problem.

Example: You have 12 yards of ribbon. It takes $\frac{2}{3}$ of a yard of ribbon to wrap a package.

How many packages can you wrap?

- A. 24 packages
- B. 18 packages
- C. 16 packages
- D. 12 packages

Estimate: I know that $\frac{2}{3}$ is more than $\frac{1}{2}$ but less than 1. So, the number of packages must be between **12** and **24**.

Eliminate: Because the number of packages must be between 12 and 24, I can eliminate choices **A** and **D**.

Working forward:

$$12 \text{ yards} \div \frac{2}{3} \text{ yard/package} = \frac{12}{1} \times \frac{3}{2} = 18 \text{ packages}$$

The correct answer is choice **B**.

Test-Taking Strategies for Math Tests

Open-Ended Response Tests

The tips for solving open-ended response problems are similar to those for solving multiple-choice problems. However, because open-ended response questions are also used to assess the problem-solving process, students must learn how to communicate their process. These tips will help them learn to do that.

Tip #1: Read the problem thoroughly and determine the goal.

Open-ended response problems are often multi-step. It is important to encourage your students to read these problems patiently and thoroughly so that they do not forget to complete the problem. It may be helpful for them to circle important information and underline the question.

Example: Maggie has 110 feet of fencing and would like to use it to enclose a rectangular area that is 32 feet by 25 feet. Does she have enough fencing to do this? Explain your reasoning.

Tip #2: Make a list of what you know and what you need to figure out.

Making lists can help students keep their information organized. Encourage them to make two lists—one of the things they know and another of the things they need to figure out.

Things I know:

1. Maggie has 110 feet of fencing.
2. The area to be enclosed is a rectangle.
3. The length of the rectangle is 32 feet, and the width is 25 feet.

Things I need to figure out:

1. What is the perimeter of the area to be enclosed?
2. Whether or not Maggie has enough fencing to enclose the area

Tip #3: Devise a plan for solving the problem.

While students do not always need to write out their problem-solving plan, it is important for them to form one. Many open-ended response problems ask students to explain their problem-solving process. Encourage students to write down their plan as part of this explanation.

Plan: I am going to calculate the perimeter of the rectangular area and compare it to the amount of fencing Maggie has.

Tip #4: Carry out your plan.

As students begin to carry out their plan, encourage them to show their work!

Tip #5: Check your work.

Students like to skip this step, but it is one of the most important ones in the problem-solving process. Encourage your students to take time to check their work and to make sure that they actually solved the problem they were asked to solve.

Carry out the plan:

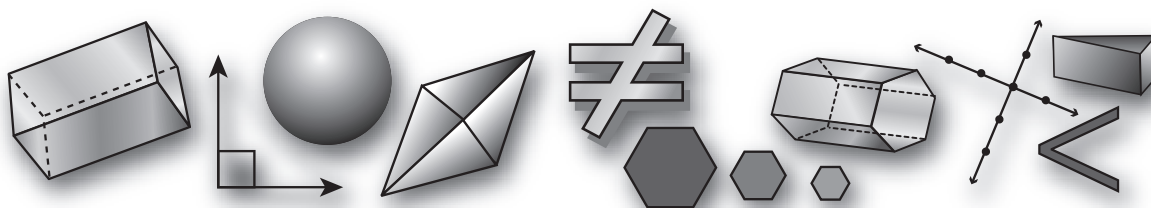
$$\begin{aligned} P &= 2l + 2w \\ &= 2(32) + 2(25) \\ &= 114 \end{aligned}$$

The perimeter of the rectangular area is 114 feet. Maggie does *not* have enough fencing to enclose it because she only has 110 feet of fencing.

Geometry

Problem Correlation to CCSS Grade 6 Geometry Standards

MC Problem #	6.G.A.1	6.G.A.2	6.G.A.3	6.G.A.4
1	•			
2			•	
3		•		
4				•
5				•
6		•		
7			•	
8	•			
9	•			
10				•
11		•		
12			•	
13		•		
14	•			
15	•			
16			•	
17			•	
18		•		
19				•
20				•
Open-Ended Problem #	6.G.A.1	6.G.A.2	6.G.A.3	6.G.A.4
1	•			
2		•		
3			•	
4		•		•

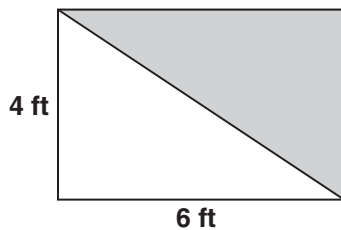


Name: _____ Date: _____

Geometry: Multiple-Choice Assessment Prep

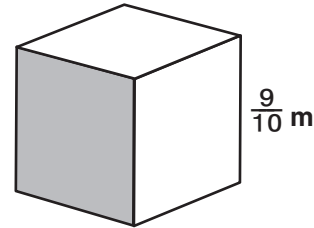
Directions: Circle the choice that best answers the question.

1. What is the area of the shaded triangle?



- A. 24 ft²
- B. 24 ft
- C. 20 ft
- D. 12 ft²

3. What is the volume of the cube?



- A. $\frac{27}{10}$ m³
- B. $\frac{27}{30}$ m³
- C. $\frac{27}{1000}$ m³
- D. $\frac{729}{1000}$ m³

2. If the given points below are plotted on a coordinate plane, which of the following best describes the resulting polygon *ABCD*?

$A(-3, -6)$, $B(-3, 1)$, $C(7, 1)$, and $D(7, -6)$

- A. Parallelogram
- B. Square
- C. Rectangle
- D. Trapezoid

4. Which answer best describes the three-dimensional figure that can be formed by the given net?



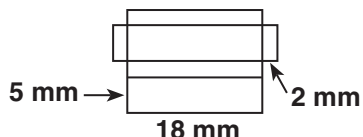
- A. Pyramid
- B. Triangular prism
- C. Prism
- D. Cone

Name: _____ Date: _____

Geometry: Multiple-Choice Assessment Prep

Directions: Circle the choice that best answers the question.

5. What is the surface area of the three-dimensional figure formed by the given net?

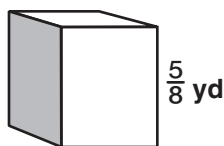


- A. 136 mm^2
- B. 180 mm^2
- C. 272 mm^2
- D. 380 mm^2

7. On a map of a town square, the library is located at $(4, 5)$, the post office is located at $(4, 16)$, and the grocery store is located at $(15, 5)$. The hardware store is 11 units from the post office and 11 units from the grocery store. What are the coordinates of the hardware store?

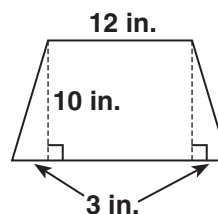
- A. $(26, 5)$
- B. $(4, 27)$
- C. $(15, 16)$
- D. $(16, 15)$

6. The right rectangular prism shown below has a volume of $\frac{5}{16}$ cubic yard. What is the area of the base of the prism?



- A. $\frac{25}{128} \text{ yd}^2$
- B. $\frac{25}{128} \text{ yd}^3$
- C. $\frac{1}{2} \text{ yd}^2$
- D. $\frac{1}{2} \text{ yd}^3$

8. What is the area of the isosceles trapezoid shown below?



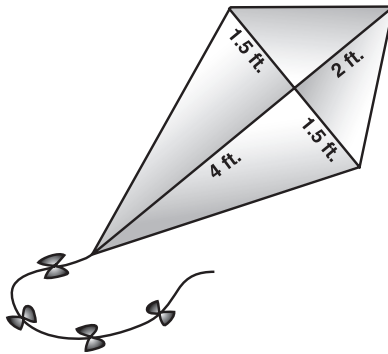
- A. 180 in.^2
- B. 150 in.^2
- C. 120 in.^2
- D. 28 in.^2

Name: _____ Date: _____

Geometry: Multiple-Choice Assessment Prep

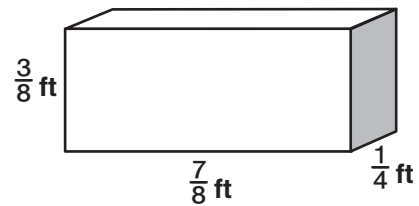
Directions: Circle the choice that best answers the question.

9. How much material is needed to make the kite that is shown?



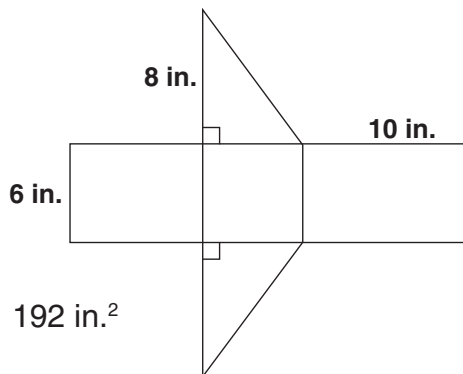
- A. 8 ft^2
- B. 9 ft^2
- C. 18 ft^2
- D. 48 ft^2

11. What is the volume of the right rectangular prism?



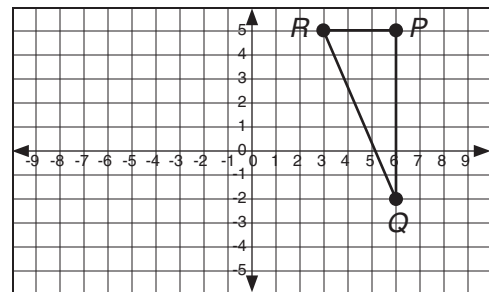
- A. $\frac{21}{256} \text{ ft}^3$
- B. $\frac{21}{256} \text{ ft}^2$
- C. $\frac{3}{2} \text{ ft}^3$
- D. $\frac{3}{2} \text{ ft}^2$

10. How much paper would be needed to cover the three-dimensional figure formed by the given net?



- A. 192 in.^2
- B. 192 in.^3
- C. 480 in.^2
- D. 480 in.^3

12. What is the length of side PQ ?



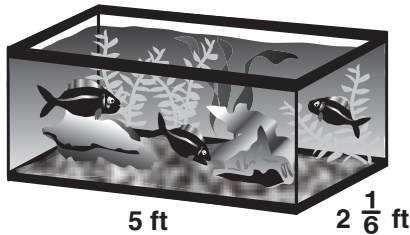
- A. 3 units
- B. 5 units
- C. 7 units
- D. 9 units

Name: _____ Date: _____

Geometry: Multiple-Choice Assessment Prep

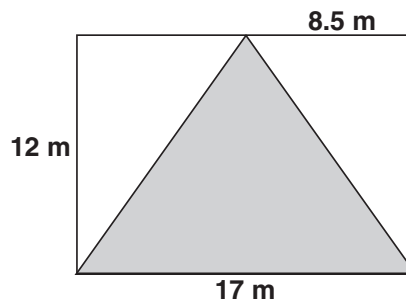
Directions: Circle the choice that best answers the question.

13. The aquarium below will hold $16\frac{1}{4}$ cubic feet of water. How deep is the aquarium?



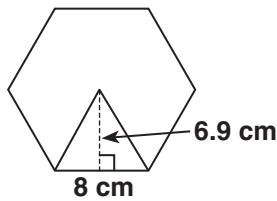
- A. $176\frac{1}{24}$ ft
- B. $7\frac{1}{2}$ ft
- C. $3\frac{1}{4}$ ft
- D. $1\frac{1}{2}$ ft

15. What is the area of the shaded triangle?



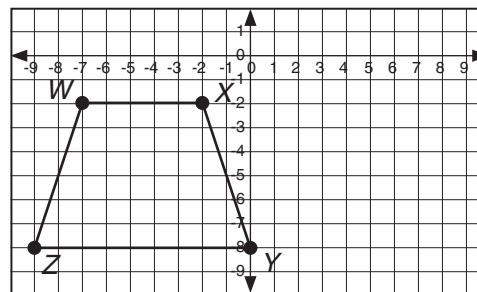
- A. 204 m^2
- B. 102 m^2
- C. 58 m^2
- D. 51 m^2

14. What is the best estimate for the area of the hexagon?



- A. 48 cm^2
- B. 56 cm^2
- C. 168 cm^2
- D. 336 cm^2

16. What is the length of side ZY?



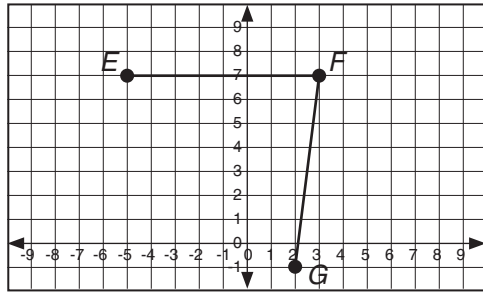
- A. 5 units
- B. 6 units
- C. 8 units
- D. 9 units

Name: _____ Date: _____

Geometry: Multiple-Choice Assessment Prep

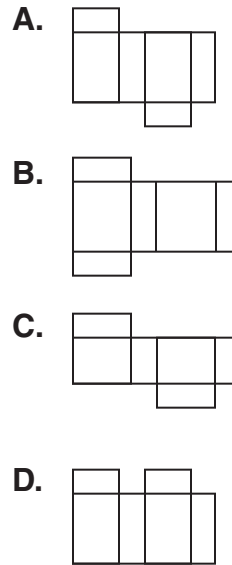
Directions: Circle the choice that best answers the question.

17. Where should point H be placed so that $EFGH$ is a parallelogram and GH has a length of 8 units?



- A. $(-6, -1)$
- B. $(-1, -6)$
- C. $(8, -1)$
- D. $(2, -9)$

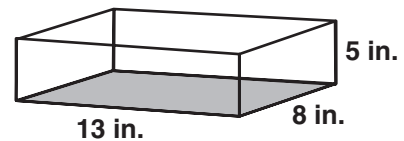
19. Which of the following could *not* be the net of a rectangular prism?



18. What is the volume of the right rectangular prism with a base of $8\frac{2}{5}$ square centimeters and a height of $1\frac{5}{6}$ centimeters?

- A. $15\frac{2}{5} \text{ cm}^3$
- B. 14 cm^3
- C. $10\frac{7}{30} \text{ cm}^3$
- D. $6\frac{17}{30} \text{ cm}^3$

20. Will 400 square inches of wrapping paper be enough to wrap the package shown below?



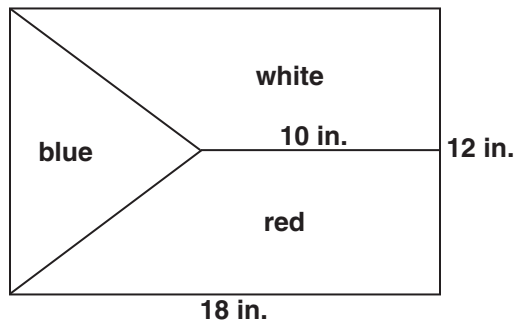
- A. Yes, because the volume of the prism is less than 400 in.^3 .
- B. Yes, because the surface area of the prism is less than 400 in.^2 .
- C. No, because the volume of the prism is greater than 400 in.^3 .
- D. No, because the surface area of the prism is greater than 400 in.^2 .

Name: _____ Date: _____

Geometry: Open-Ended Response Assessment Prep

Directions: Answer the question completely. Show your work and explain your reasoning.

Problem 1: Addison is making a flag of the Czech Republic for a class project. A sketch of the flag is shown. How much red, white, and blue material will Addison need?



Show your work.

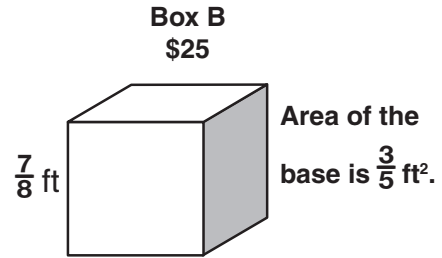
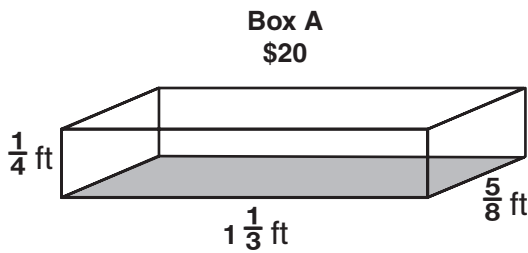
Explain your reasoning.

Name: _____ Date: _____

Geometry: Open-Ended Response Assessment Prep

Directions: Answer the question completely. Show your work and explain your reasoning.

Problem 2: A store is going out of business and is running a special close-out deal on their office supplies. Customers can buy Box A or Box B for the prices shown. Then they can fill the box with merchandise. Which box is a better deal? Explain how you determined your answer.



Show your work.

Explain your reasoning.

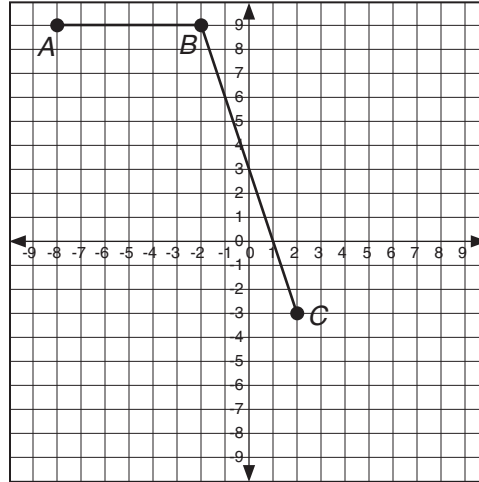
Name: _____ Date: _____

Geometry: Open-Ended Response Assessment Prep

Directions: Answer the question completely. Show your work and explain your reasoning.

Problem 3: Use the graph below to answer the questions.

1. What are the coordinates for four different points that are 6 units from point C ?
2. Which, if any, of these points could be connected to points A and C such that figure $ABCD$ is a parallelogram?



Show your work.

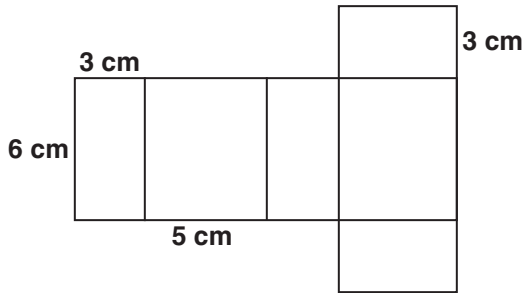
Explain your reasoning.

Name: _____ Date: _____

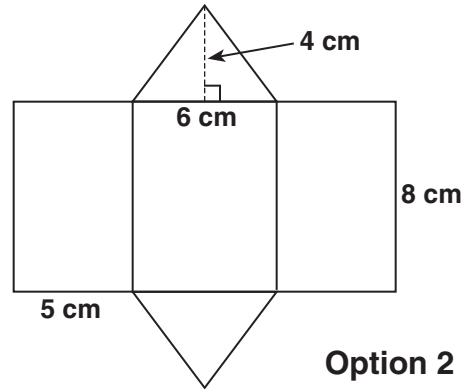
Geometry: Open-Ended Response Assessment Prep

Directions: Answer the question completely. Show your work and explain your reasoning.

Problem 4: Eleesha is making small boxes for party favors. She wants to use as little cardboard as possible. However, she would like the boxes to hold as much as possible. The nets for her two design ideas are shown below. Which one should she choose?



Option 1



Option 2

Show your work.

Explain your reasoning.

Geometry: Answers and Diagnostics

Multiple Choice Questions

Problem #	Correct Answer	Diagnostics
1.	D	A. Student calculated area of entire rectangle. B. Student calculated area of entire rectangle and used incorrect units. C. Student calculated perimeter of rectangle.
2.	C	A. Student chose correct but not <i>best</i> description. B. Student assumed all side lengths were the same. D. Student is unclear about the definition of a trapezoid.
3.	D	A. Student multiplied the given dimension by three. B. Student added numerators and denominators instead of multiplying. C. Student added numerators and multiplied denominators.
4.	B	A. Student incorrectly identified the solid formed by the given net. C. Student did not choose the <i>best</i> answer. D. Student incorrectly identified the solid formed by the given net.
5.	C	A. Student calculated half of the surface area. B. Student calculated the volume. D. Student incorrectly calculated the lateral area.
6.	C	A. Student multiplied volume by height. B. Student multiplied volume by height and used incorrect units. D. Student used incorrect units.
7.	C	A. Student chose a location that is 11 units from the grocery store only. B. Student chose a location that is 11 units from the post office only. D. Student confused the x - and y -coordinates.
8.	B	A. Student multiplied 3, 10, and 12, and then divided by 2. C. Student calculated the area of the rectangular portion of the trapezoid. D. Student added all of the numbers together.
9.	B	A. Student multiplied 2 and 4. C. Student multiplied all of the numbers together. D. Student multiplied 2, 3, and 8.
10.	A	B. Student used incorrect units. C. Student calculated volume but included square units. D. Student calculated volume.
11.	A	B. Student used incorrect units. C. Student added dimensions instead of multiplying them. D. Student added dimensions and used incorrect units.
12.	C	A. Student determined length of RP . B. Student incorrectly calculated length of PQ . D. Student guessed.
13.	D	A. Student multiplied volume by length and width of base. B. Student divided volume by width of base. C. Student divided volume by length of base.
14.	C	A. Student calculated the perimeter of the hexagon. B. Student multiplied 8 and 7. D. Student multiplied 6, 7, and 8.
15.	B	A. Student calculated the area of the rectangle. C. Student calculated the perimeter of the rectangle. D. Student calculated half of the area of the triangle.

Geometry: Answers and Diagnostics

16.	D	A. Student calculated length of WX . B. Student guessed. C. Student miscalculated the length of ZY .
17.	A	B. Student confused the x - and y -coordinates. C. Student chose location for H that would not yield a parallelogram. D. Student chose location for H that would not yield a parallelogram.
18.	A	B. Student multiplied incorrectly. C. Student added area of the base and height. D. Student subtracted height from area of base.
19.	D	A. Student chose a net that forms a rectangular prism. B. Student chose a net that forms a rectangular prism. C. Student chose a net that forms a rectangular prism.
20.	D	A. Student confused surface area and volume. B. Student miscalculated surface area. C. Student confused surface area and volume.

Open-Ended Response Questions

Problem #1

Area of (material for) blue triangle: $\frac{1}{2}(12)(8) = 48 \text{ in.}^2$; Area of red trapezoid: $\frac{(18 \times 12) - 48}{2} = 84 \text{ in.}^2$;

Area of white trapezoid: $\frac{(18 \times 12) - 48}{2} = 84 \text{ in.}^2$

Problem #2

Volume of Box A: $\left(\frac{1}{4}\right)\left(\frac{4}{3}\right)\left(\frac{5}{8}\right) = \frac{5}{24} \text{ ft}^3$; Volume of Box B: $\left(\frac{3}{5}\right)\left(\frac{7}{8}\right) = \frac{21}{40} \text{ ft}^3$;

Because Box B holds over twice as much as Box 1 for only \$5 more, it is the better deal.

Problem #3

1. $(8, -3)$, $(-4, -3)$, $(2, 3)$, and $(2, -9)$

2. The point $(-4, -3)$ could be connected to points A and C to form a parallelogram, because it would be 6 units from point C , and make \overline{AB} parallel to \overline{DC} and \overline{AD} parallel to \overline{BC} .

Problem #4

Volume of Option 1: $6 \times 5 \times 3 = 90 \text{ cm}^3$;

Surface Area of Option 1: $2(6 \times 5) + 2(5 \times 3) + 2(3 \times 6) = 126 \text{ cm}^2$;

Volume of Option 2: $\frac{1}{2}(6)(4)(8) = 96 \text{ cm}^3$;

Surface Area of Option 2: $2\left(\frac{1}{2}(6 \times 4)\right) + 2(5 \times 8) + (6 \times 8) = 152 \text{ cm}^2$;

The packages can hold about the same amount. However, Option 2 uses more cardboard. Therefore, Eleesha should choose Option 1.