

6<sup>th</sup> Grade

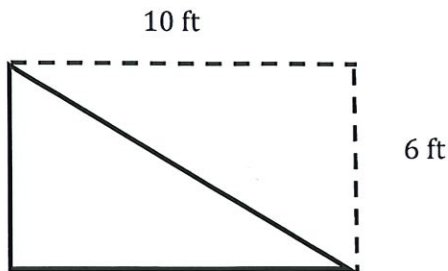
6.G.1

**Answer Document: 8 points total (1 point each)**

Use the dimensions of each rectangle to find the area of each triangle.

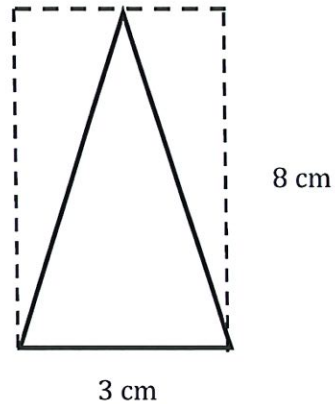
Do not use the **Area of a Triangle** formula (use it only to check your work).

1.



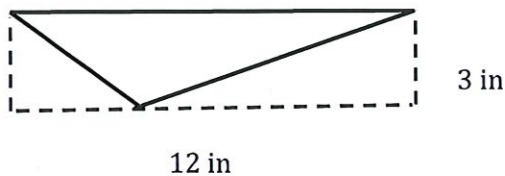
$$6 \times 10 = 60 \div 2 = 30 \text{ ft}^2$$

2.



$$3 \times 8 = 24 \div 2 = 12 \text{ cm}^2$$

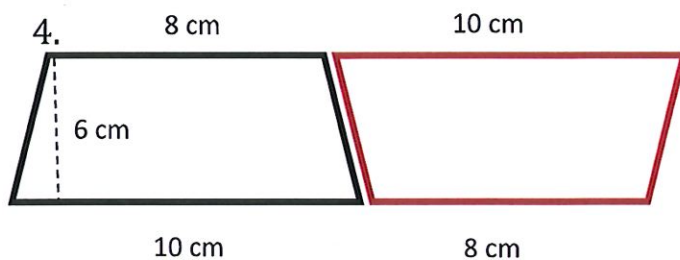
3.



$$12 \times 3 = 36 \div 2 = 18 \text{ in}^2$$

Use strategies of composing and decomposing shapes into parallelograms, rectangles, and triangles to find the area of the following shapes.

4.

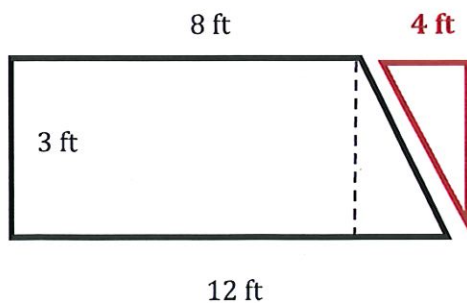


**Parallelogram Area:**

$$A = b \times h$$

$$A = 18 \times 6 = 108 \div 2 = 54$$

5.



**Triangle Area:**

$$A = 3 \times 4 = 12 \div 2 = 6$$

**Rectangle Area:**

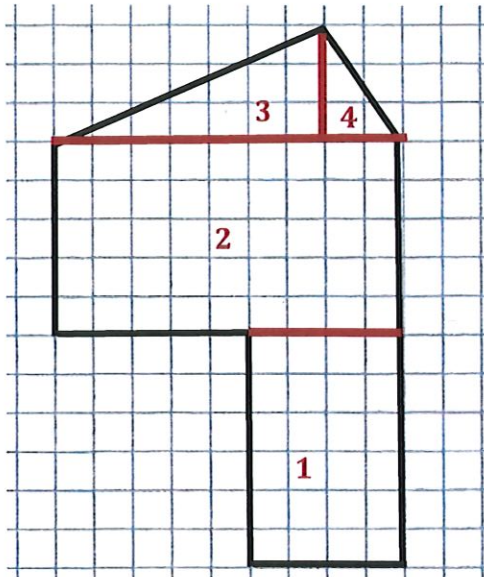
$$A = 12 \times 3 = 36$$

**Rectangle - Triangle Area**

$$36 - 6 = 30 \text{ ft}^2$$

**or an equivalent method.**

6<sup>th</sup> Grade  
6.G.1



1 square = 1 square meter

A sketch of Sarah's backyard is shown to the left. Sarah's dog needs 100 square meters to play.  
6. Only use the area of rectangles to find the area of Sarah's backyard. Show how you decomposed and/or composed.

**Rect 1:  $6 \times 4 = 24$**

**Rect 2:  $9 \times 5 = 45$**

**Triangle 1:  $7 \times 3 = 21 \div 2 = 10.5$**

**Triangle 2:  $2 \times 3 = 6 \div 2 = 3$**

**Total:  $82.5 \text{ meters}^2$**

**Or other equivalent methods.**

7. Does Sarah's dog have enough room to play? **No**

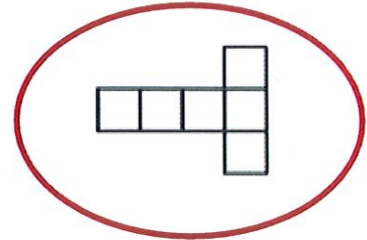
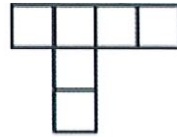
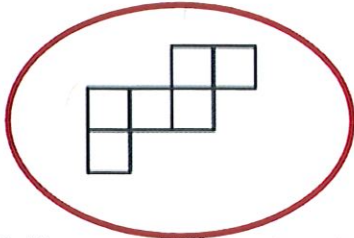
8. Explain.

**Sarah's dog needs 100 square meters and her yard is only 82.5 square meters. She is short 17.5 square meters.**

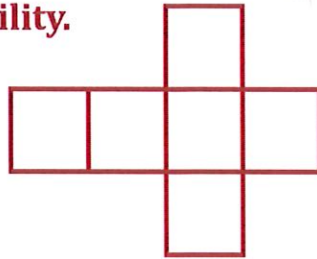
6<sup>th</sup> Grade  
6.G.4

**Answer Document: 6 points total (1 point each)**

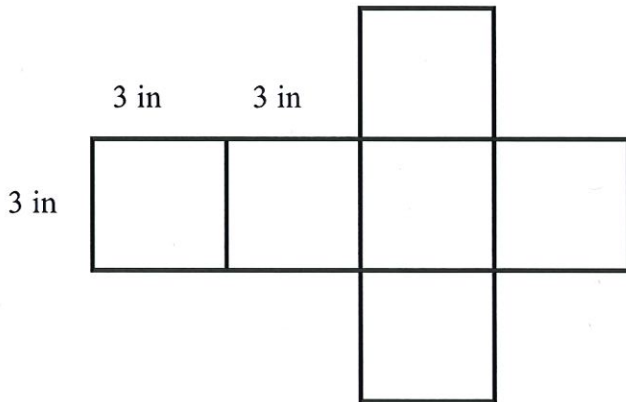
1. Circle all of the following figures that can be folded to make a cube?



2. Draw a different net from your answer in question 1 that can be folded to make a cube. **One possibility.**

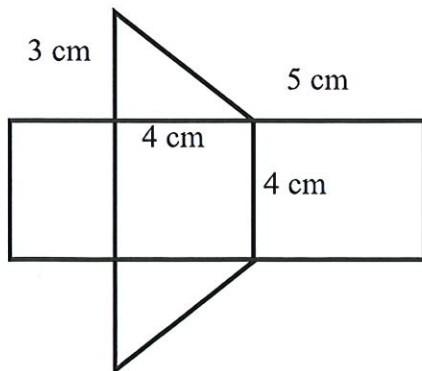


3. Find the surface area of the flat pattern below.



$3 \times 3 = 9$   
 $9 \times 6 \text{ sides} = 54 \text{ in}^2$   
**Or any other equivalent method.**

4. Find the surface area of the flat pattern below.

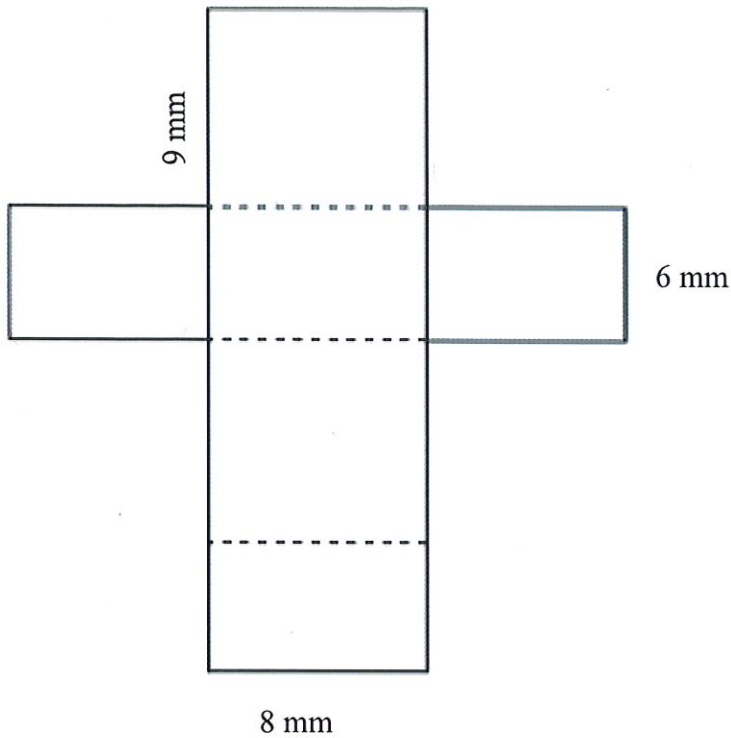


$3 \times 4 = 12$   
 $4 \times 4 = 16$   
 $4 \times 5 = 20$   
 $3 \times 4 = 12 \div 2 = 6$   
 $3 \times 4 = 12 \div 2 = 6$   
**Total:  $60 \text{ cm}^2$**   
**Or any other equivalent method.**

6<sup>th</sup> Grade

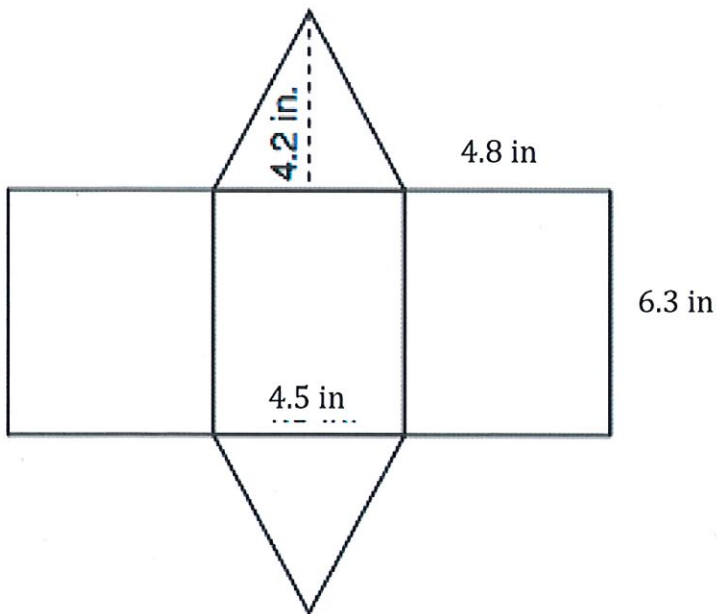
6.G.4

5. You are painting a box for your friend's birthday. Use the dimensions below to determine how much paint you will need?



$8 \times 9 = 72$   
 $8 \times 6 = 48$   
 $9 \times 6 = 54$   
Subtotal:  $174 \times 2 =$  Total =  $348 \text{ mm}^2$   
Or any other equivalent method.

6. How much sheeting will David need to cover the figure below?

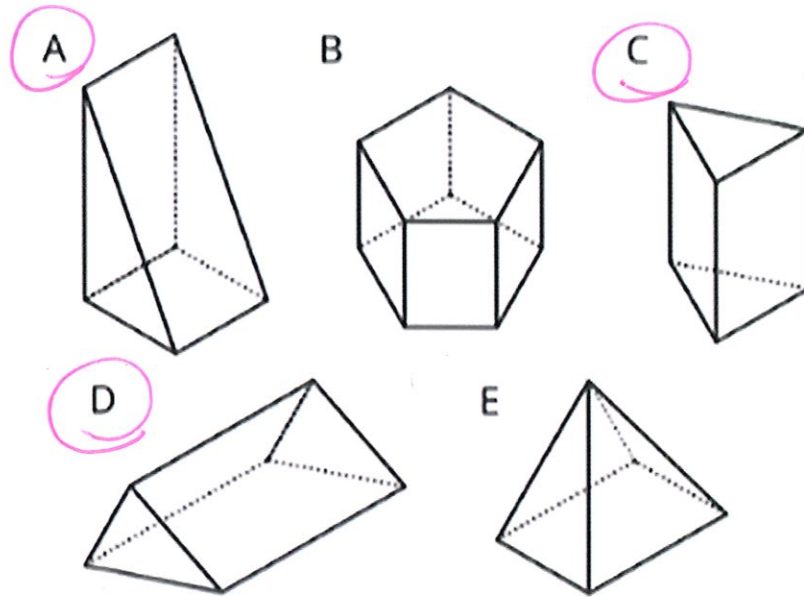


$4.5 \times 6.3 = 28.35$   
 $6.3 \times 4.8 = 30.24 \times 2 = 60.48$   
 $4.5 \times 4.2 = 18.9 \div 2 = 9.45 \times 2 \text{ triangles} = 18.9$   
Total:  $107.73 \text{ in}^2$   
Or any other equivalent method.

4.2 in

## End of Unit 1 Assessment Study Guide

1. Which figure is a triangular prism? Select **all** that apply.



A, C, D

2. A cube has a side length of 6 inches.

Select **all** the values that represent the cube's volume in cubic inches.

- A.  $6^3$
- B.  $6^2$
- C.  $6 \times 6^3$
- D.  $6 \times 6 \times 6$
- E.  $6 \times 6$

A, D



3.

A square is 3 inches by 3 inches. What is its area?

$$3\text{ in} \times 3\text{ in} = \boxed{9\text{ in}^2}$$

A square has a side length of 5 feet. What is its area?

$$5\text{ ft} \times 5\text{ ft} = \boxed{25\text{ ft}^2}$$

The area of a square is 36 square centimeters. What is the length of each side of the square?

$$A = l \times w$$
$$36 = 6 \times 6 \quad \boxed{6\text{ cm}}$$

4. For each pair of numbers circle the number that is greater. Show or explain your reasoning.

$$10^2 \text{ or } 2^{10}$$

100 or 1,024

$$\begin{array}{r} 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \\ \hline 4 \times 4 \times 4 \times 4 \times 4 \\ \hline 16 \times 16 \times 4 \\ \hline 256 \times 4 \\ \hline 1,024 \end{array}$$

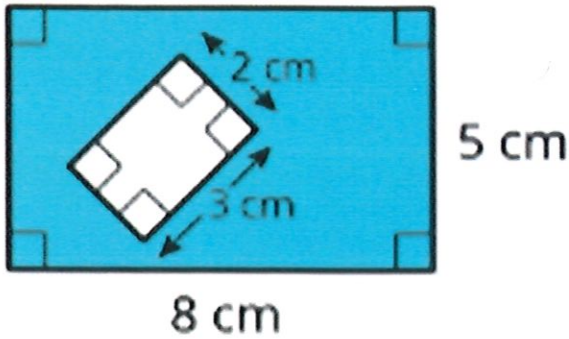
$$\boxed{6 \times 10^2} \text{ or } 6^2 \times 10$$

$6 \times 100$  or  $36 \times 10$   
 $600$  or  $360$

$$12^3 \text{ or } 14^3$$

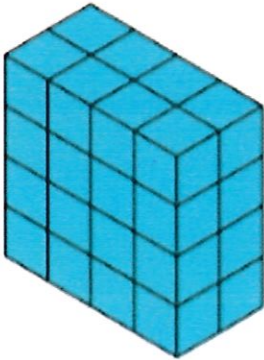
$12 \times 12 \times 12$  OR  $14 \times 14 \times 14$

5. Find the area of the shaded region. Show or explain your reasoning.



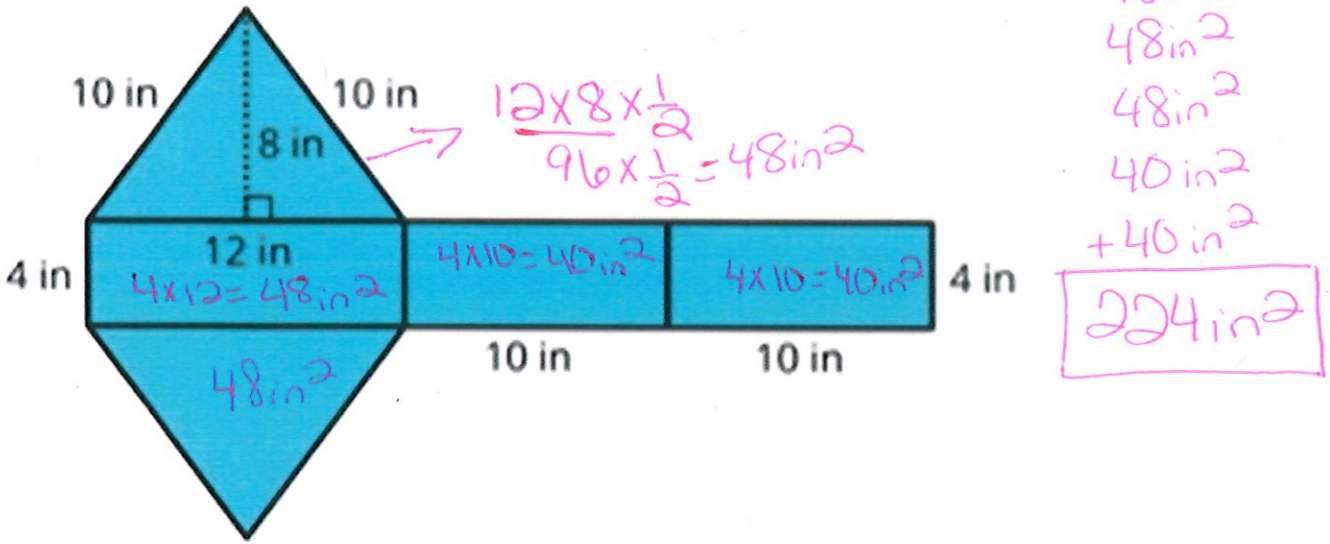
$$\begin{array}{r}
 8 \times 5 = 40 \text{ cm}^2 \\
 - 2 \text{ cm} \times 3 \text{ cm} = -6 \text{ cm}^2 \\
 \hline
 34 \text{ cm}^2
 \end{array}$$

6. A rectangular prism has dimensions of 4 cm by 2 cm by 4 cm. What is its surface area? Explain or show your reasoning.



$$\begin{array}{r}
 \text{Top } 4 \times 2 = 8 > 16 \\
 \text{bottom } 4 \times 2 = 8 > 16 \\
 \text{Front } 4 \times 4 = 16 > 16 \\
 \text{Back } 4 \times 4 = 16 > 16 \\
 \text{Side 1 } 2 \times 4 = 8 > 16 \\
 \text{Side 2 } 2 \times 4 = 8 > 16 \\
 \hline
 \text{Surface Area } 164 \text{ cm}^2
 \end{array}$$

7. Here is a net made of triangles and rectangles. All measurements are given in inches.



a. If the net were folded and assembled, what type of polyhedron would it make?

Triangular Prism

b. What is the surface area of the polyhedron? Explain your reasoning.

$224 \text{ in}^2$