

Unit 7

Geometry

Goal: Improve your depth of knowledge in the concepts of area, volume, and surface area.

Learning Target:

- You Will:
- a) Apply and extend previous understandings of arithmetic to algebraic expressions.
 - b) Solve real-world and mathematical problems involving area, surface area, and volume.

Notes: Please take notes on each section from class or other resources i.e. videos or labs.

Please complete the practice problems individually, in small groups, or when we go over them on the board as a class.

Homework: Please complete the homework problems on your own and show all your work.

Quiz Review: Please complete the quiz review to prepare for the quiz.

Unit Review: Please complete the unit review to prepare for the test.

Extra Work Space: There are blank pages provided at the back of this packet if you need extra space to do your work. These can be utilized while working on notes, the homework, or on your i-Ready My Path.

Please visit my website for completed notes, video notes, study guides, and blank versions of this packet. The address is: mrlapham.com

Name: _____ Hour: _____

Area of Parallelograms

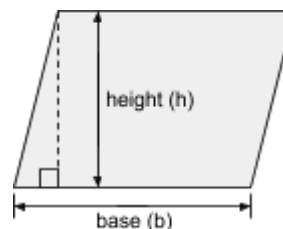
Notes

The area **A** of a parallelogram is the product of any base **b** and its height **h**.

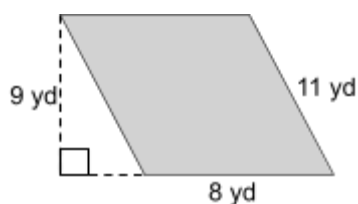
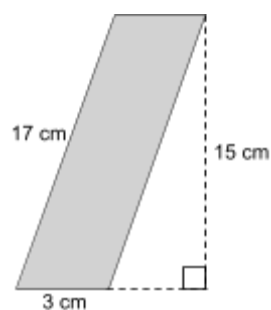
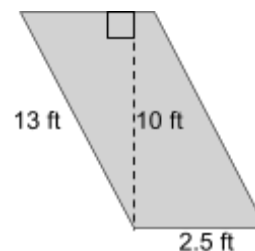
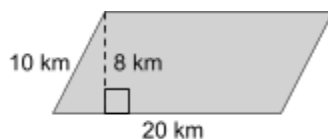
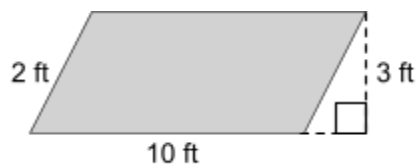
Symbols

$$A =$$

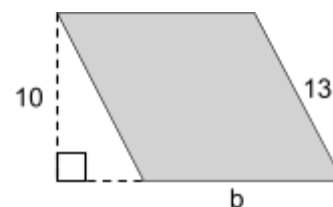
Model



Find the area of each parallelogram



Find the missing side length if the area is 120 unit².

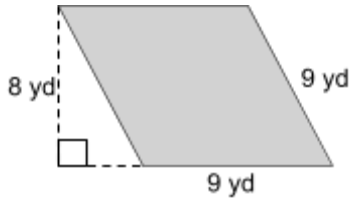


Homework

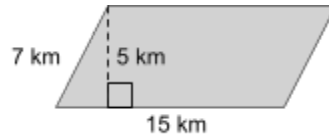
Please complete the homework on your own and show all your work.

Find the area of each parallelogram.

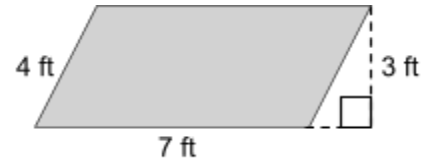
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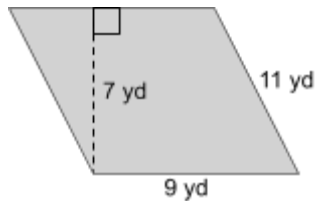
2.



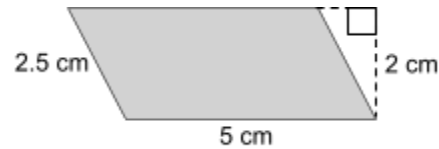
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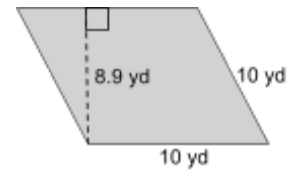
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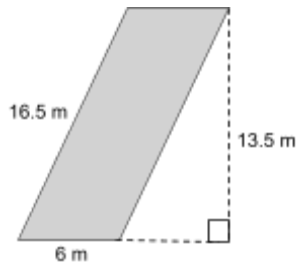
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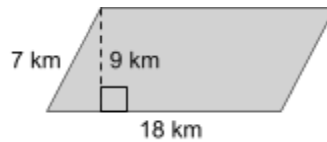
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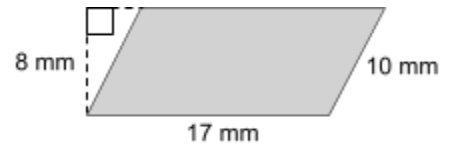
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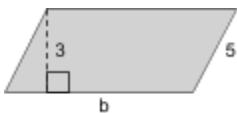
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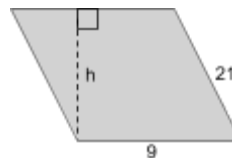
9.



10. Find the missing side length if the area of the parallelogram is 15 units².



11. Find the missing side length if the area of the parallelogram is 63 units².



Area of Triangles

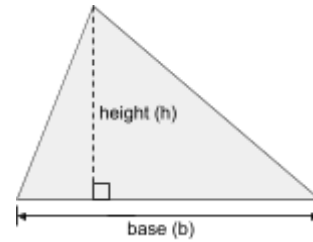
Notes

The area **A** of a triangle is one half the product of any base **b** and its height **h**.

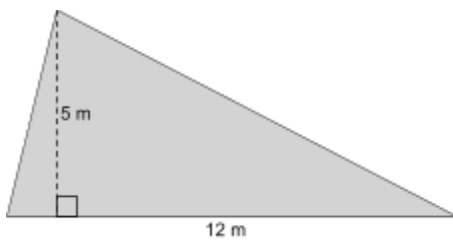
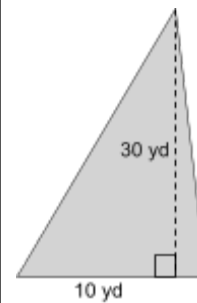
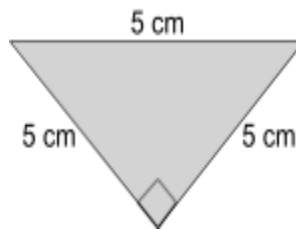
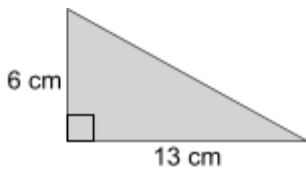
Symbols

$$A = \quad \text{or} \quad A =$$

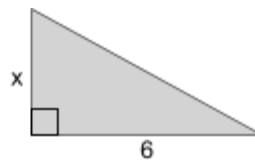
Model



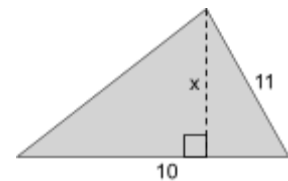
Find the area of each triangle



Find the missing measurement, if the area of the triangle is 18 units².



Find the missing measurement, if the area of the triangle is 50 units².

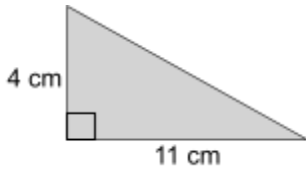


Homework

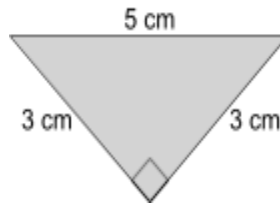
Please complete the homework on your own and show all your work.

Find the area of each triangle.

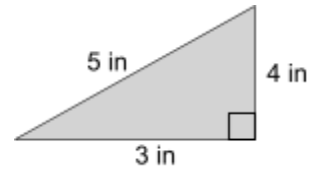
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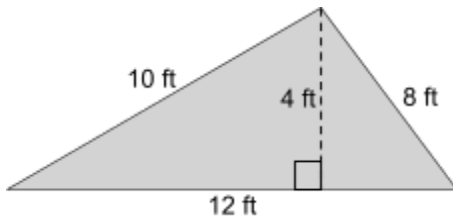
2.



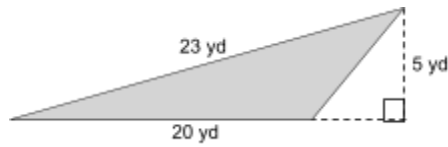
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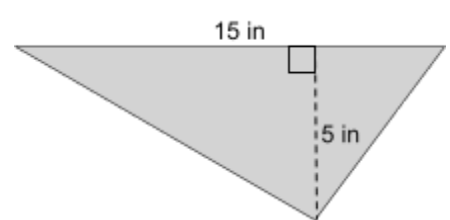
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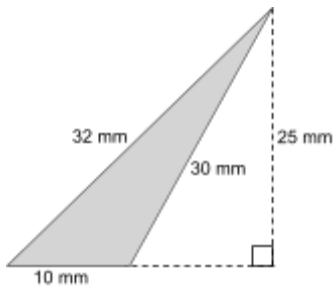
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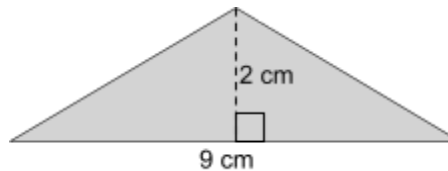
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7.



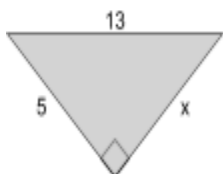
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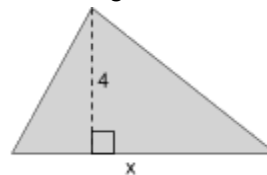
9.



10. Find the missing measurement, if the area of the triangle is 15 units².



11. Find the missing measurement, if the area of the triangle is 27 units².



Area of Composite Shapes

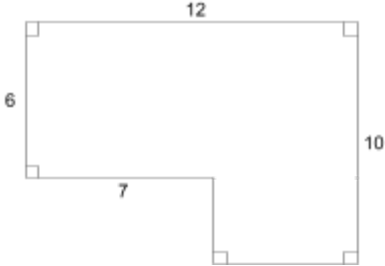
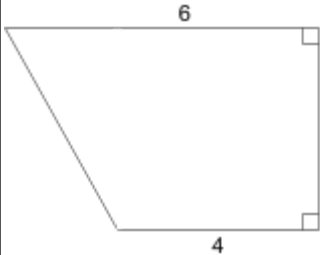
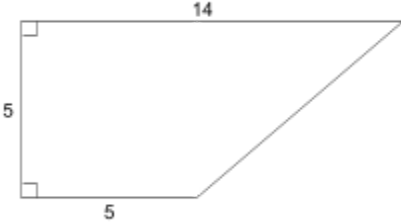
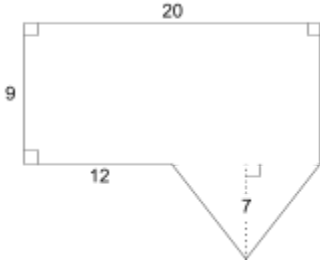
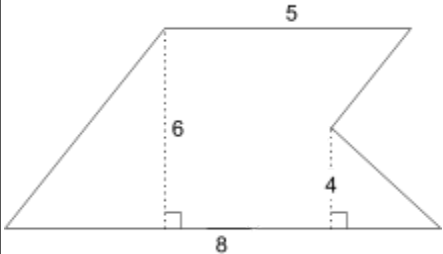
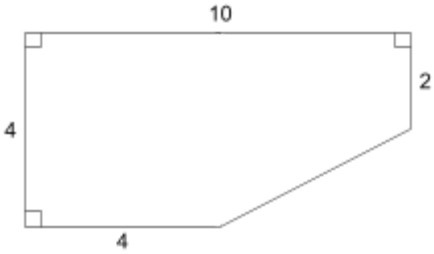
Notes

Composite Shapes: Shapes that are made up of simple shapes such as _____, _____, _____, and _____.

Area: Add the areas of all the _____ together.

Area of Parallelograms $A = bh$	Area of Rectangles $A = lw$	Area of Triangles $A = \frac{1}{2}bh$ or $A = \frac{bh}{2}$
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Find the area of each composite shape.

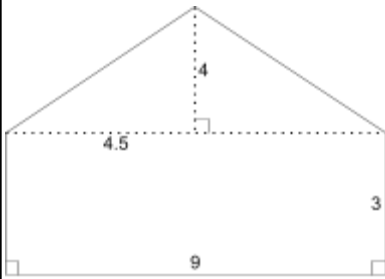
 A = _____ units²	 A = _____ units²	 A = _____ units²
 A = _____ units²	 A = _____ units²	 A = _____ units²

Homework

Please complete the homework on your own and show all your work.

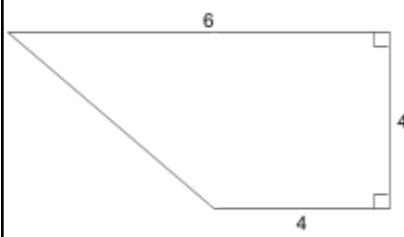
Find the area of each composite shape.

1.



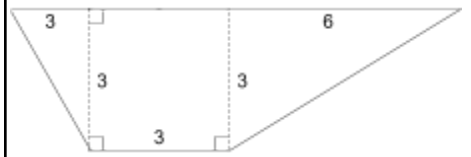
$$A = \underline{\hspace{2cm}} \text{ units}^2$$

2.



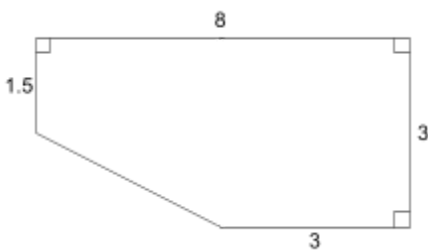
$$A = \underline{\hspace{2cm}} \text{ units}^2$$

3.



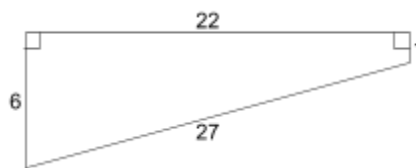
$$A = \underline{\hspace{2cm}} \text{ units}^2$$

4.



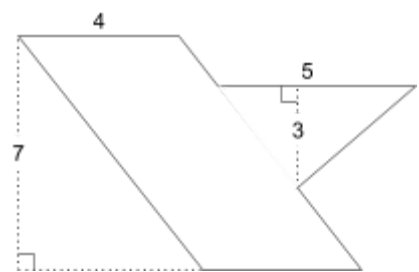
$$A = \underline{\hspace{2cm}} \text{ units}^2$$

5.



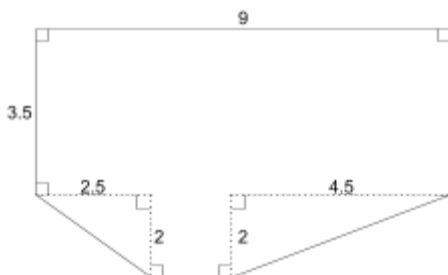
$$A = \underline{\hspace{2cm}} \text{ units}^2$$

6.



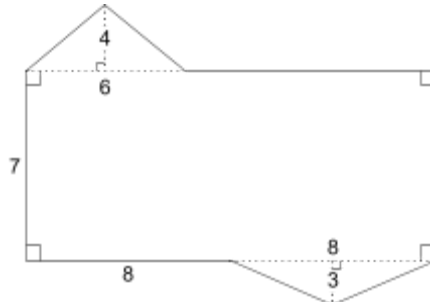
$$A = \underline{\hspace{2cm}} \text{ units}^2$$

7.



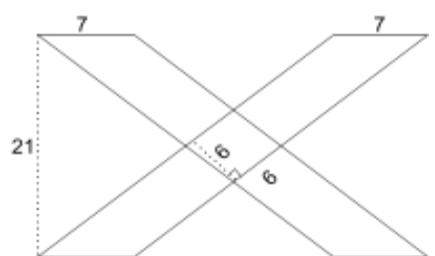
$$A = \underline{\hspace{2cm}} \text{ units}^2$$

8.



$$A = \underline{\hspace{2cm}} \text{ units}^2$$

9.



$$A = \underline{\hspace{2cm}} \text{ units}^2$$

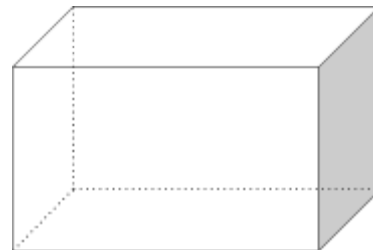
Geometric Solids

Notes

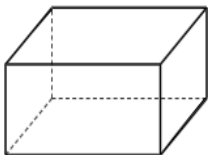
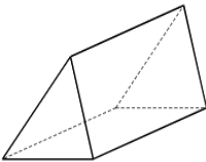
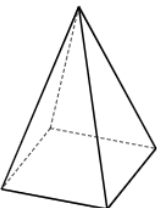
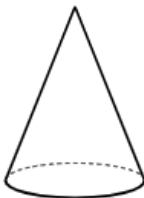
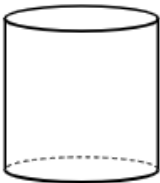
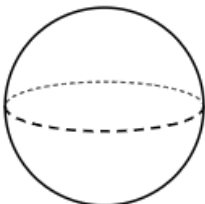
Vertex: A point where two or more _____ meet.

Edge: A line segment that joins two _____.

Face: The flat _____ of a solid. They are separated by _____.

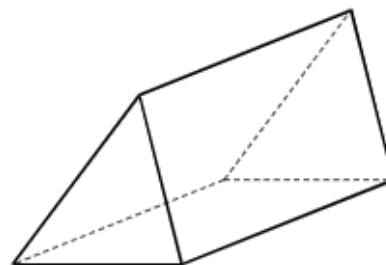
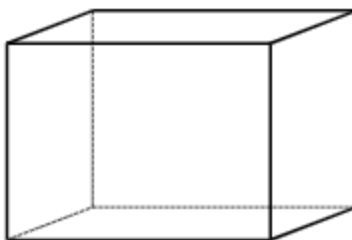
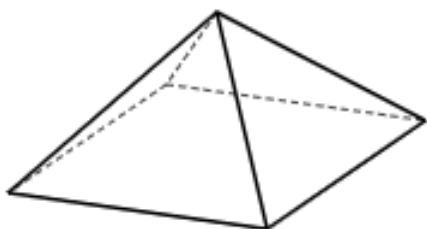


Prism: A solid geometric figure whose two end _____ are the same and whose sides are _____.

Types of Geometric Solids					
Rectangular Prism 	Triangular Prism 	Square Pyramid 	Cone 	Cylinder 	Sphere 

Name each shape and identify the number of vertices, edges, and faces.

Name: _____ Name: _____ Name: _____



Vertices: _____

Vertices: _____

Vertices: _____

Edges: _____

Edges: _____

Edges: _____

Faces: _____

Faces: _____

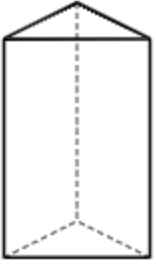
Faces: _____

Homework

Please complete the homework on your own and show all your work.

Name each shape and identify the number of vertices, edges, and faces.

1. Name: _____

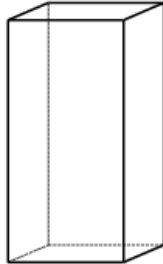


Vertices: _____

Edges: _____

Faces: _____

2. Name: _____

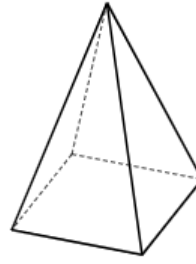


Vertices: _____

Edges: _____

Faces: _____

3. Name: _____

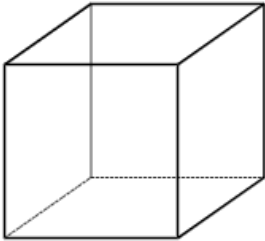


Vertices: _____

Edges: _____

Faces: _____

4. Name: _____

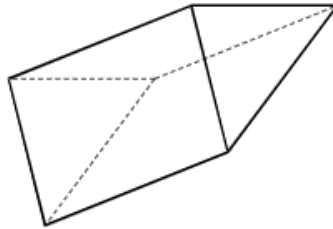


Vertices: _____

Edges: _____

Faces: _____

5. Name: _____

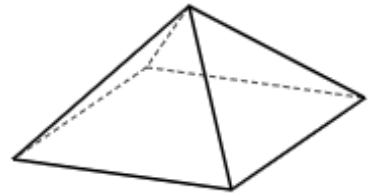


Vertices: _____

Edges: _____

Faces: _____

6. Name: _____



Vertices: _____

Edges: _____

Faces: _____

7. Name: _____

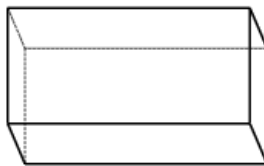


Vertices: _____

Edges: _____

Faces: _____

8. Name: _____

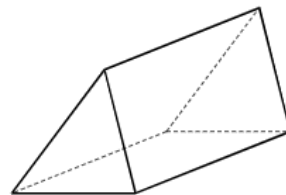


Vertices: _____

Edges: _____

Faces: _____

9. Name: _____



Vertices: _____

Edges: _____

Faces: _____

Name the following shapes.

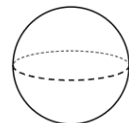
10. Name: _____



11. Name: _____



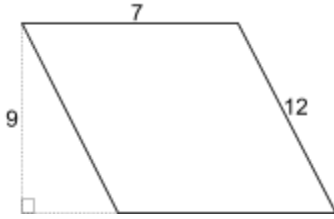
12. Name: _____



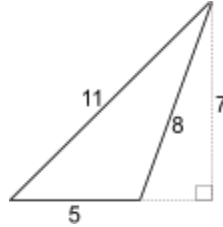
Quiz Review

Please complete this review to prepare for the quiz.

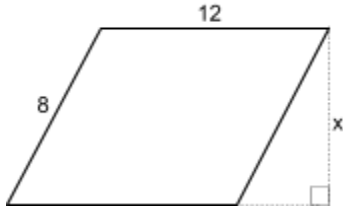
Find the area of the parallelogram.



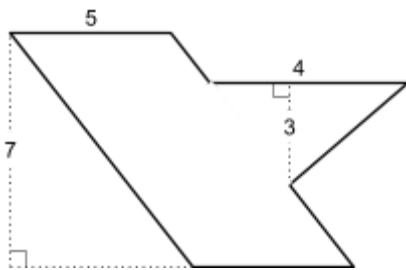
Find the area of the triangle.



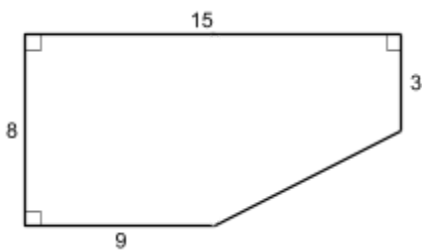
Find the missing side length if the area of the parallelogram is 48 units².



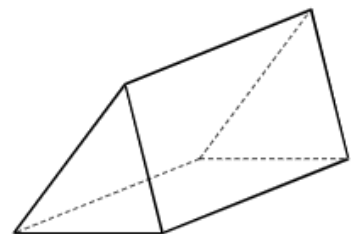
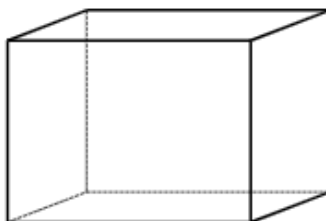
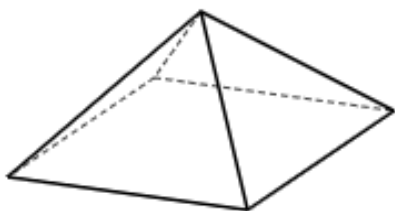
Find the area of the composite shape.



Find the area of the composite shape.



Identify the name, vertices, edges, and faces of each figure.



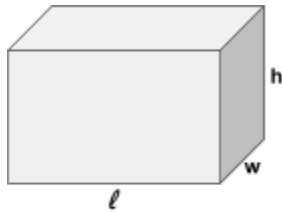
Volume of Rectangular Prisms

Notes

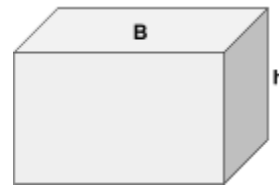
Volume: The amount of space _____ a three-dimensional figure

- Volume is measured in _____

$$V = lwh$$

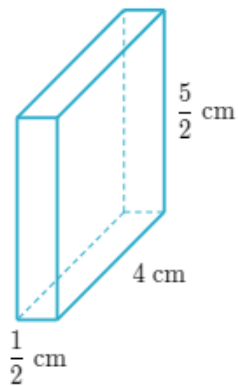


$$V = Bh$$

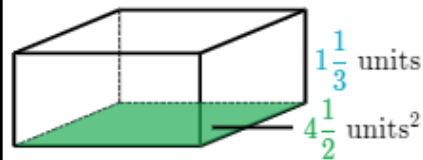


The Base (**B**) = the area of that side

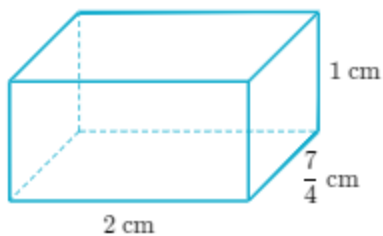
Find the volume of the prism.



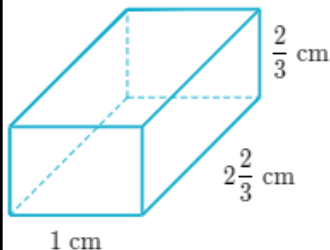
Find the volume of the prism.



How many cubes with the side lengths of $\frac{1}{4}$ cm does it take to fill this prism?



How many cubes with the side lengths of $\frac{1}{3}$ cm does it take to fill this prism?

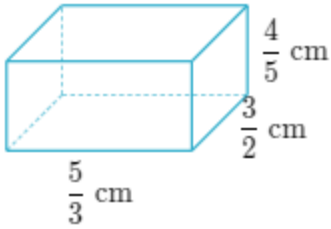


A rectangular prism with a volume of 9 cubic units is filled with cubes that have side lengths of $\frac{1}{2}$ units. How many $\frac{1}{2}$ unit cubes does it take to fill the prism?

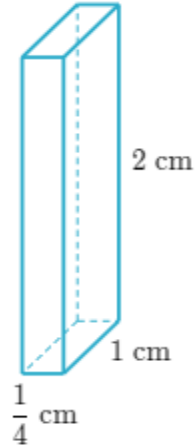
Homework

Please complete the homework on your own and show all your work.

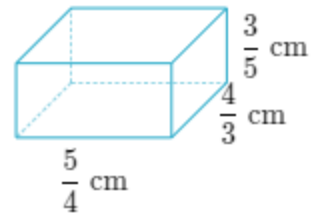
1. Find the volume.



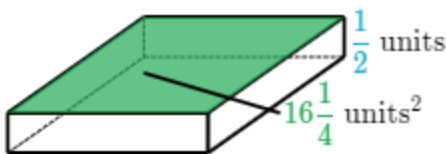
2. Find the volume.



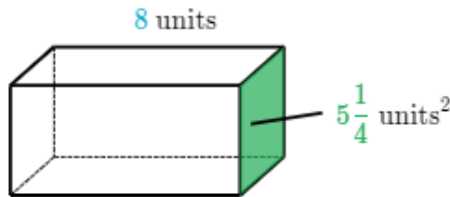
3. Find the volume.



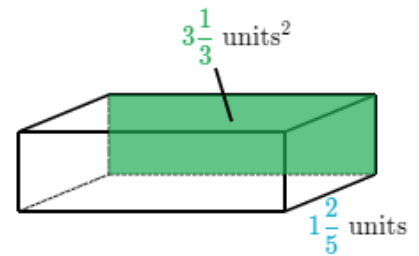
4. Find the volume.



5. Find the volume.

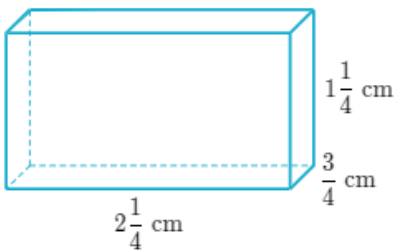


6. Find the volume.

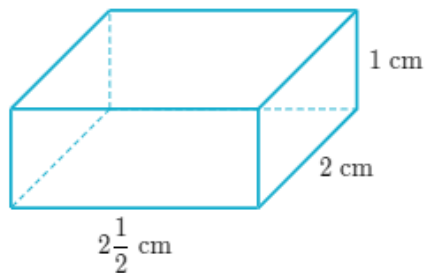


For 7 & 8, find how many cubes with the side lengths of $\frac{1}{4}$ cm does it take to fill each of the following prisms.

7.



8.



9. A rectangular prism with a volume of 12 cubic units is filled with cubes that have side lengths of $\frac{1}{2}$ units. How many $\frac{1}{2}$ unit cubes does it take to fill the prism?

10. If the volume of a rectangular prism is 60mm^3 , and has a length of 5 mm and a width of 4 mm, what is the height?

Surface Area

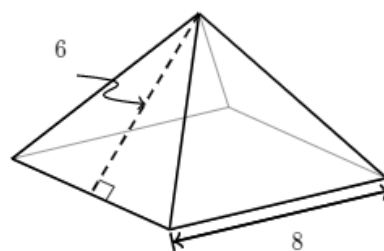
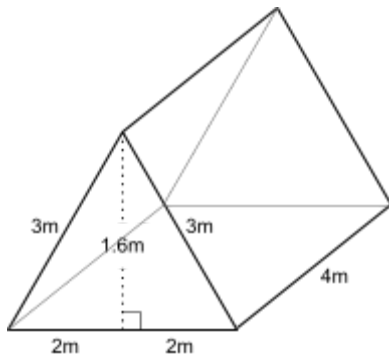
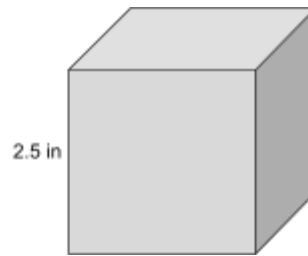
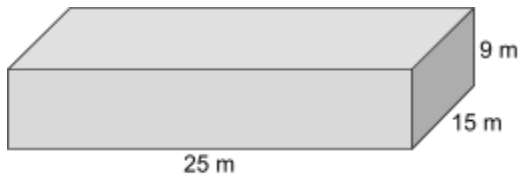
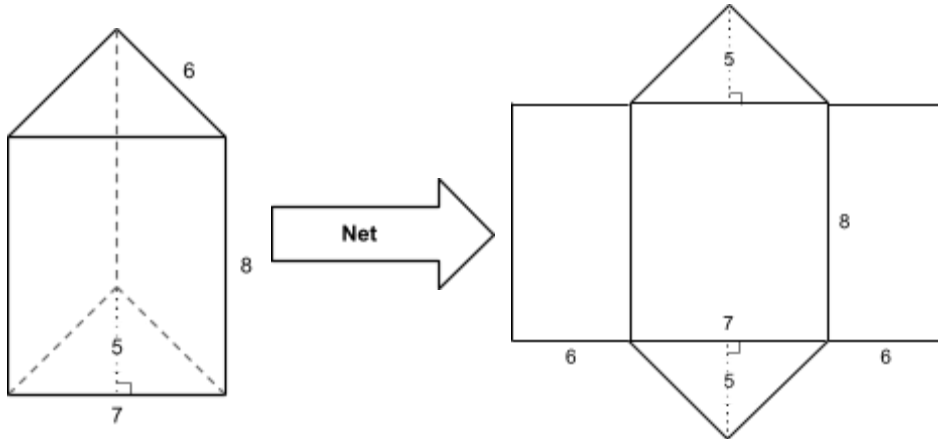
Notes

Surface Area: The sum of the _____ of each _____

Nets: A _____ that you can cut and fold to make a model of a solid _____.

Find the surface area of each object.

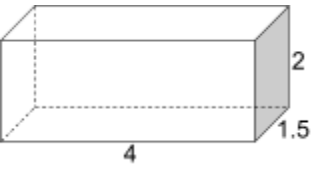
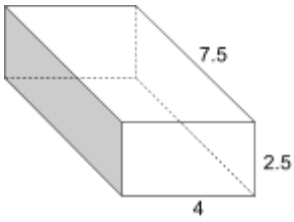
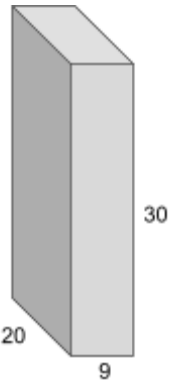
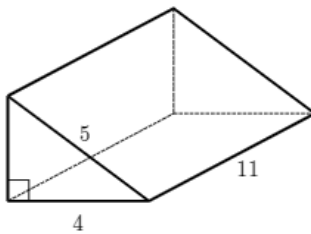
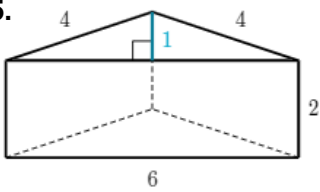
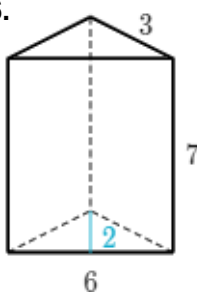
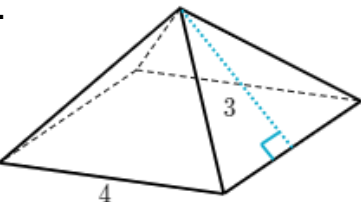
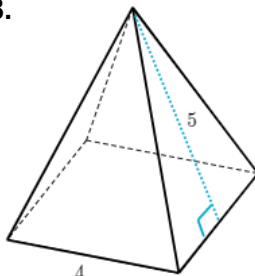
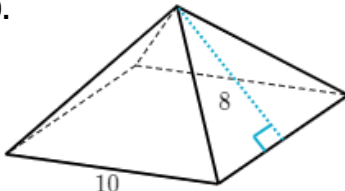
Use the net for this triangular prism to find the surface area.



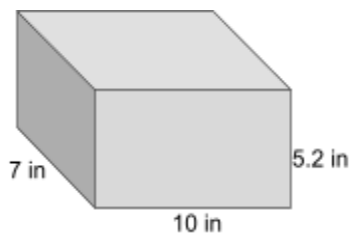
Homework

Please complete the homework on your own and show all your work.

Find the surface area of each figure using units².

1.  _____ units²	2.  _____ units²	3.  _____ units²
4.  _____ units²	5.  _____ units²	6.  _____ units²
7.  _____ units²	8.  _____ units²	9.  _____ units²

10. Tim wants to paint this box without the top of it. What is the precise surface area that he will paint?



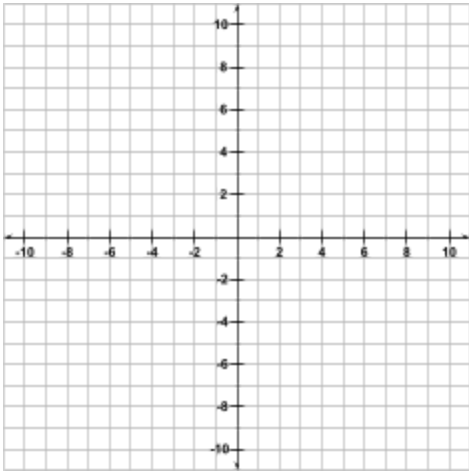
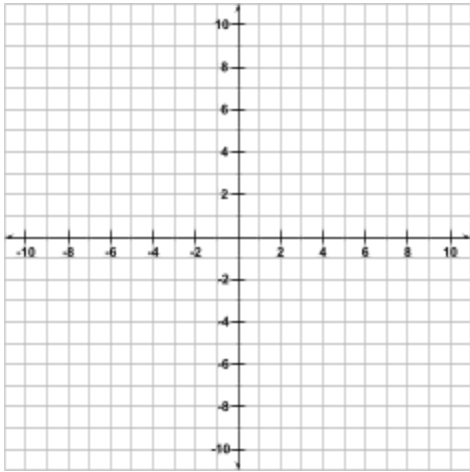
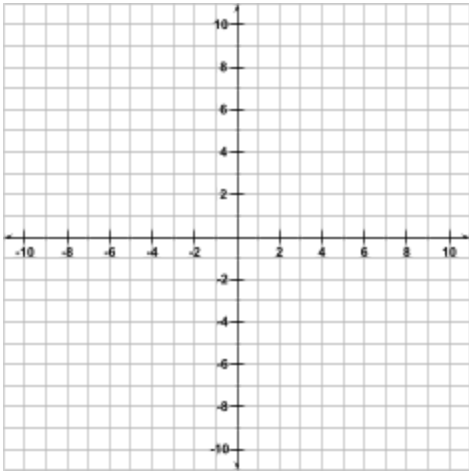
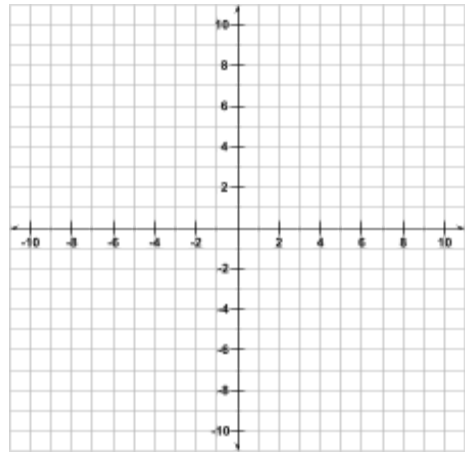
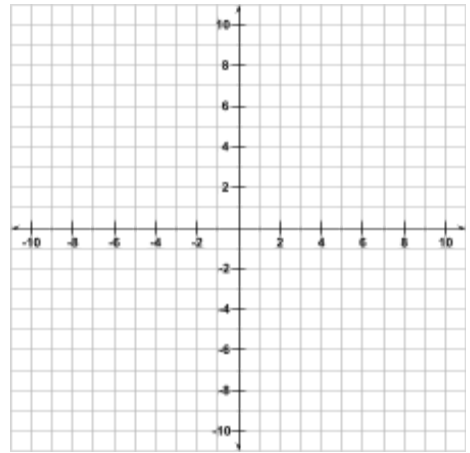
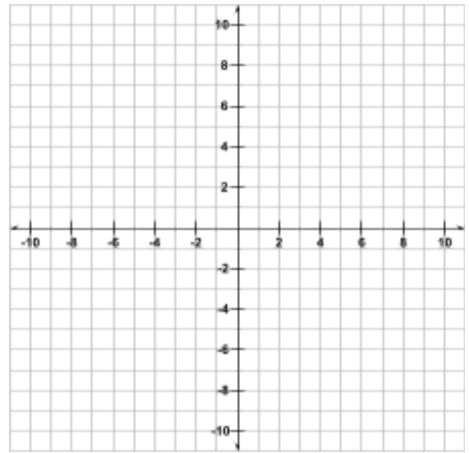
Polygons on the Coordinate Plane

Notes

- **Ordered pair** - is used to name a _____ on the coordinate plane. (,)

Area of Parallelograms	Area of Rectangles	Area of Triangles
$A = bh$	$A = lw$	$A = \frac{1}{2}bh$ or $A = \frac{bh}{2}$

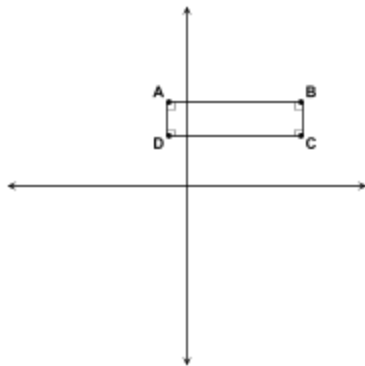
Given the upper left (**UL**) and upper right (**UR**) coordinates of a rectangle along with its area (**A**) or perimeter (**P**), draw the rectangle on the coordinate plane. Also write the coordinates for the missing points.

UL (-4,6) UR (0,6) A = 20u² 	UL (-2,-3) UR (3,-3) A = 25u² 	UL (-6,4) UR (-3,4) A = 21u² 
UL (-6,5) UR (2,5) P = 26u 	UL (-3,2) UR (8,2) P = 30u 	UL (4,9) UR (5,9) P = 20u 

Rectangle **ABCD** has the following coordinates:

A(-1,3), **B**(6,3), and **C**(6,2)

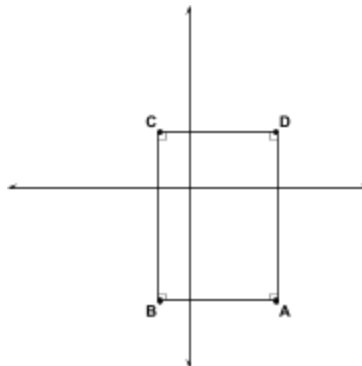
What are the coordinates for point **D**? (,)



Rectangle **ABCD** has the following coordinates:

A(3,-4), **B**(-1,-4), and **C**(-1,2)

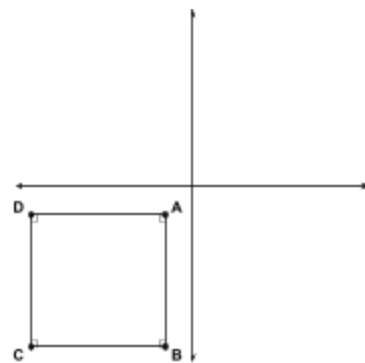
What are the coordinates for point **D**? (,)



Square **ABCD** has the following coordinates:

A(-1,-1), **B**(-1,-5), and **C**(-5,-5)

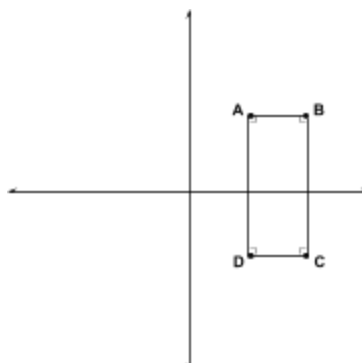
What are the coordinates for point **D**? (,)



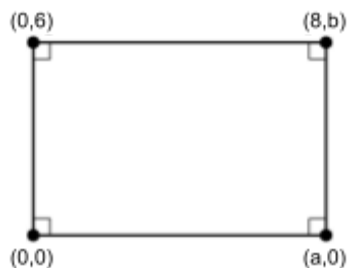
Rectangle **ABCD** has the following coordinates:

A(2,3), **B**(4,3), and **C**(4,-2.5)

What are the coordinates for point **D**? (,)



Does coordinate **a** or coordinate **b** represent a greater number?

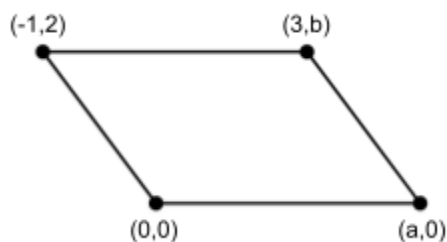


Pick One

Coordinate A

Coordinate B

Does coordinate **a** or coordinate **b** represent a greater number?

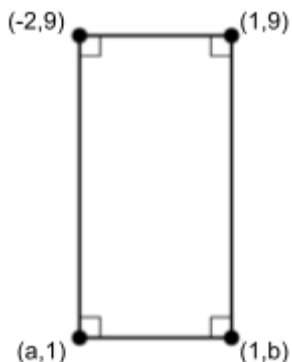


Pick One

Coordinate A

Coordinate B

Does coordinate **a** or coordinate **b** represent a greater number?

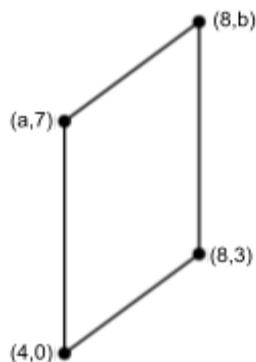


Pick One

Coordinate A

Coordinate B

Does coordinate **a** or coordinate **b** represent a greater number?



Pick One

Coordinate A

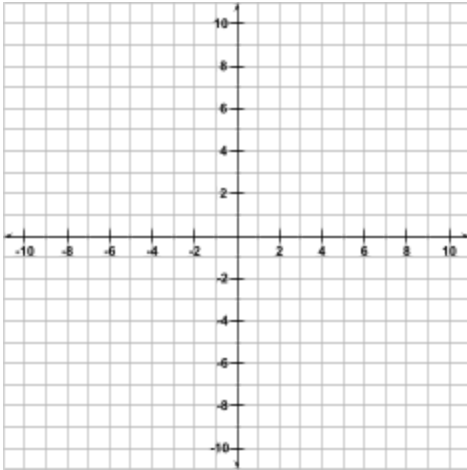
Coordinate B

Homework

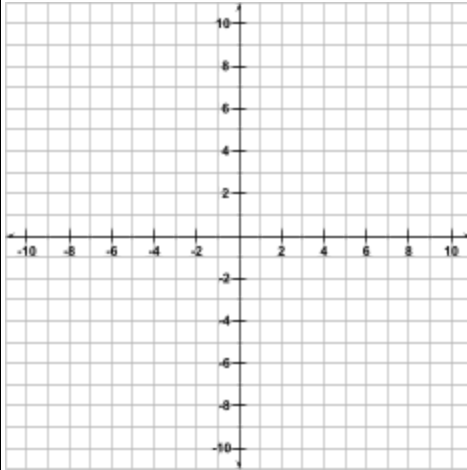
Please complete the homework on your own and show all your work.

Given the upper left (**UL**) and upper right (**UR**) coordinates of a rectangle along with its area (**A**) or perimeter (**P**), draw the rectangle on the coordinate plane. Also write the coordinates for the missing points.

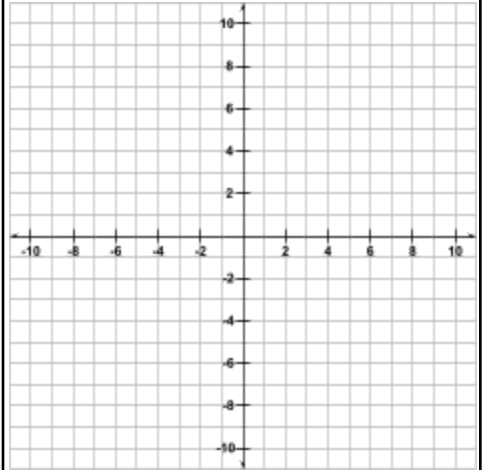
1.
UL (-5,9) **UR** (2,9) **A** = $42u^2$



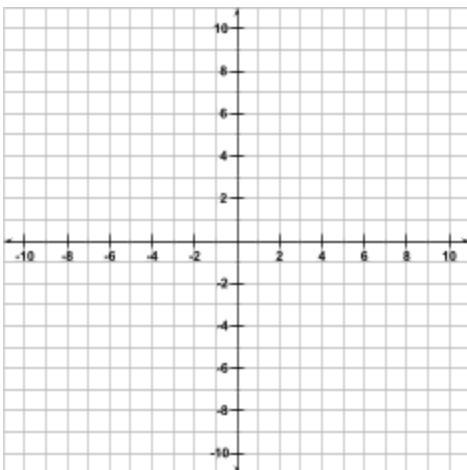
2.
UL (1,2) **UR** (7,2) **A** = $12u^2$



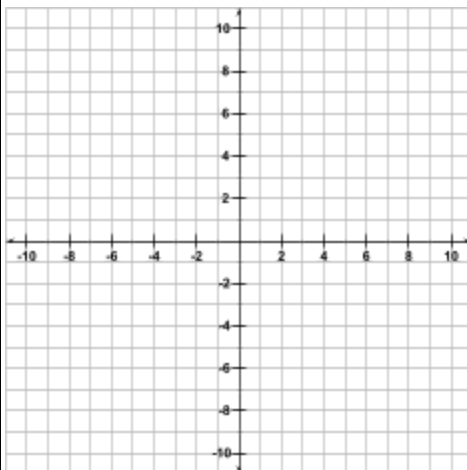
3.
UL (-7,0) **UR** (0,0) **A** = $28u^2$



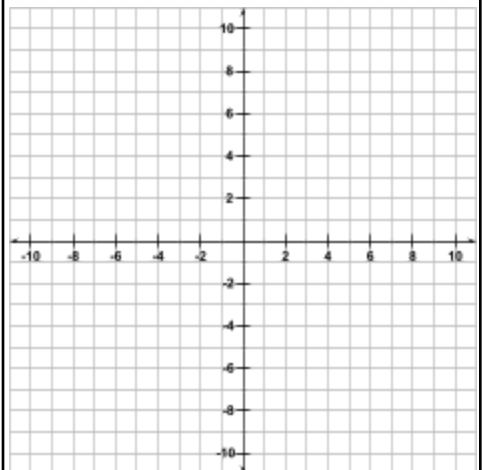
4.
UL (-8,2) **UR** (-5,2) **P** = $16u$



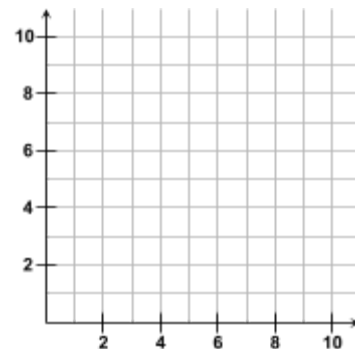
5.
UL (4,4) **UR** (8,4) **P** = $28u$



6.
UL (-4,-4) **UR** (8,-4) **P** = $30u$



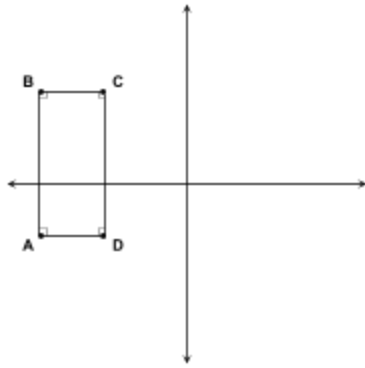
7. ****Challenge**** Draw a Triangle that has a base from (2,2) to (7,2) and has an area of $10u^2$. The triangle should only be in the first quadrant. There are multiple answers.



8. Rectangle **ABCD** has the following coordinates:

A(-7,-5), **B**(-7,6), and **C**(-4,6)

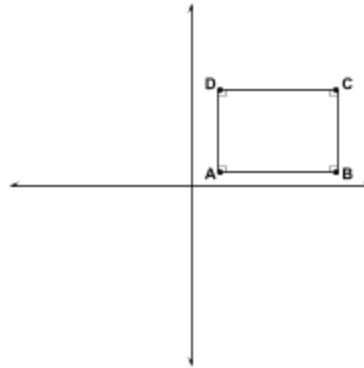
What are the coordinates for point **D**? (,)



9. Rectangle **ABCD** has the following coordinates:

A(2,1), **B**(5,1), and **C**(5,6)

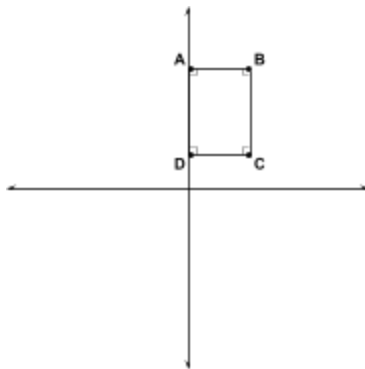
What are the coordinates for point **D**? (,)



10. Square **ABCD** has the following coordinates:

A(0,6), **B**(4,6), and **C**(4,2)

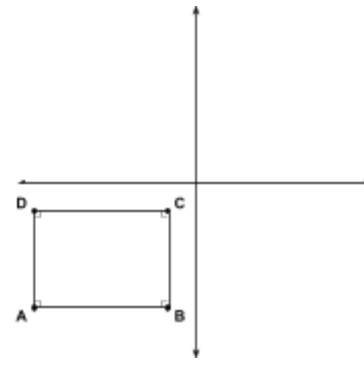
What are the coordinates for point **D**? (,)



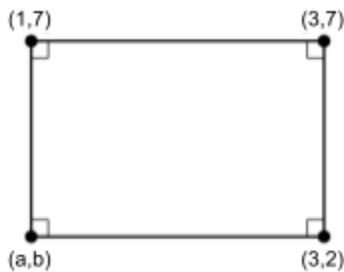
11. Rectangle **ABCD** has the following coordinates:

A(-8,-6), **B**(-3,-6), and **C**(-3,-4)

What are the coordinates for point **D**? (,)



12. Does coordinate **a** or coordinate **b** represent a greater number?

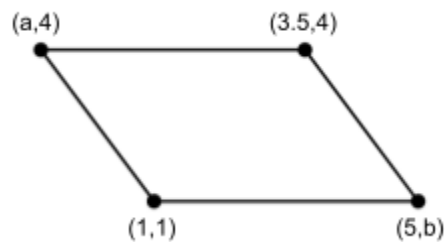


Pick One

Coordinate A

Coordinate B

13. Does coordinate **a** or coordinate **b** represent a greater number?

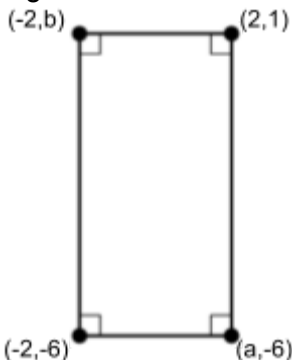


Pick One

Coordinate A

Coordinate B

14. Does coordinate **a** or coordinate **b** represent a greater number?

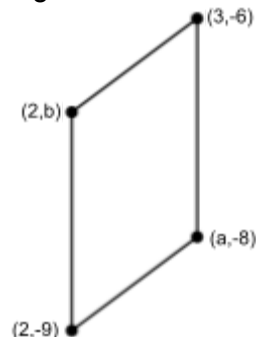


Pick One

Coordinate A

Coordinate B

15. Does coordinate **a** or coordinate **b** represent a greater number?



Pick One

Coordinate A

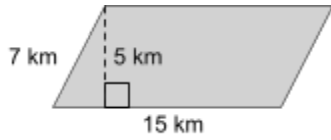
Coordinate B

Unit 7 Review

Please complete this review to prepare for the test.

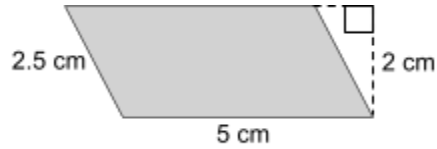
Find the area of each parallelogram.

1.



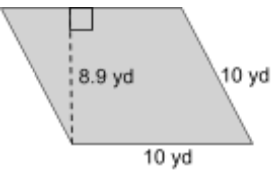
1. _____

2.



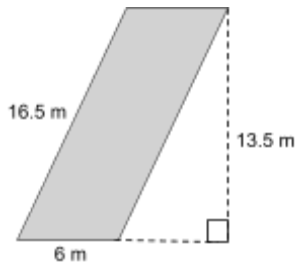
2. _____

3.



3. _____

4.

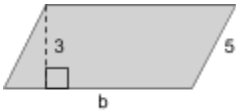


4. _____

Find the missing side length of each parallelogram.

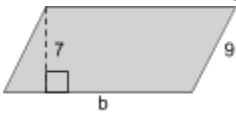
5. Find the missing side length, if the area is 27 units².

5. _____



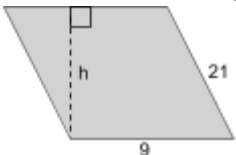
6. Find the missing side length, if the area is 91 units².

6. _____



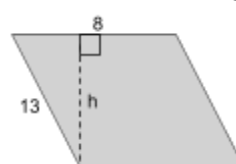
7. Find the missing side length, if the area is 135 units².

7. _____



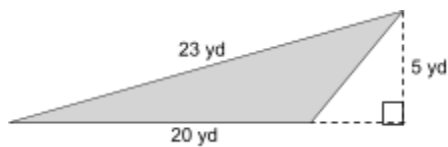
8. Find the missing side length, if the area is 96 units².

8. _____



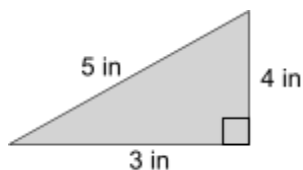
Find the area of each triangle.

9.



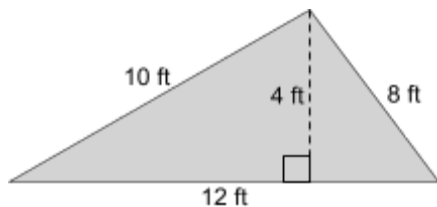
9. _____

10.



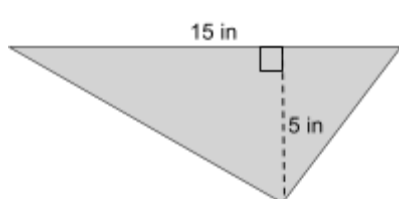
10. _____

11.



11. _____

12.

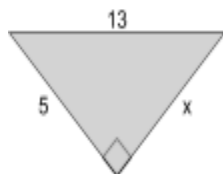


12. _____

Find the missing side length of each triangle.

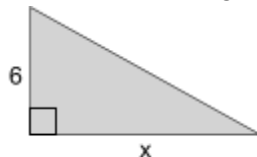
13. Find the missing side length, if the area is 30 units².

13. _____



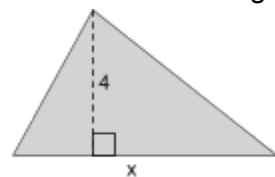
14. Find the missing side length, if the area is 51 units².

14. _____

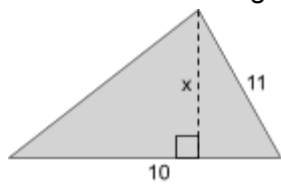


15. Find the missing side length, if the area is 15 units².

15. _____



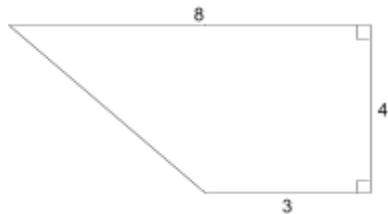
16. Find the missing side length, if the area is 62.5 units².



16. _____

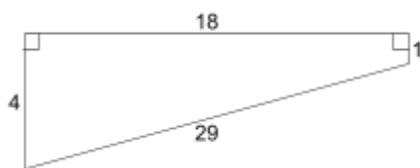
Find the area of each composite shape.

17.



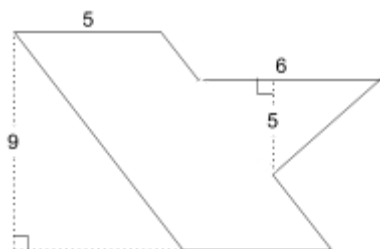
17. _____

18.



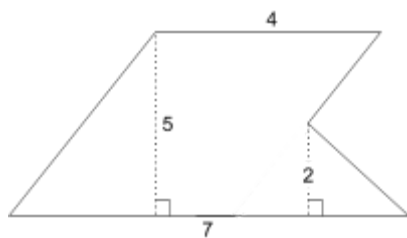
18. _____

19.



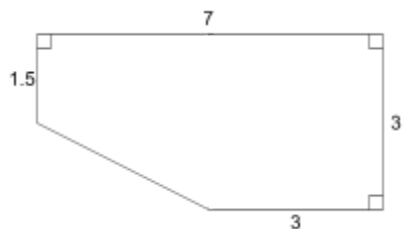
19. _____

20.



20. _____

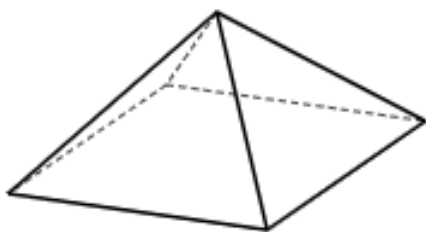
21.



21. _____

Identify the name along with the number of vertices, edges, and faces of each shape.

22.



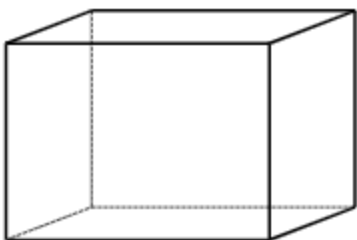
22. Name: _____

Vertices: _____

Edges: _____

Faces: _____

23.



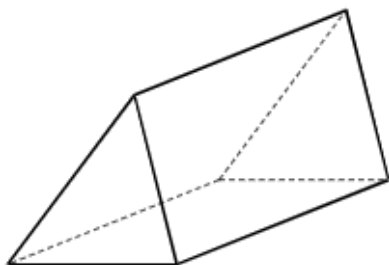
23. Name: _____

Vertices: _____

Edges: _____

Faces: _____

24.



24. Name: _____

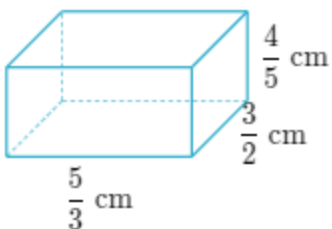
Vertices: _____

Edges: _____

Faces: _____

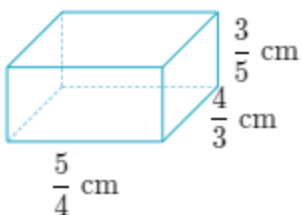
Find the volume of each rectangular prism.

25.



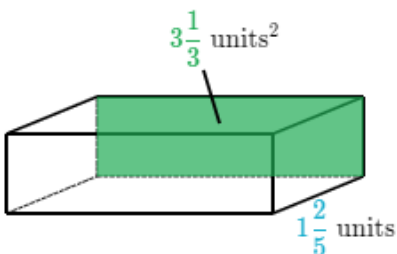
25. _____

26.



26. _____

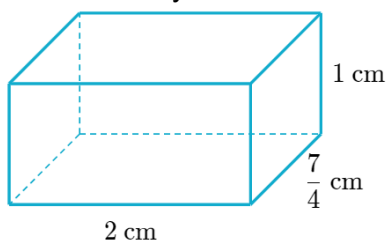
27.



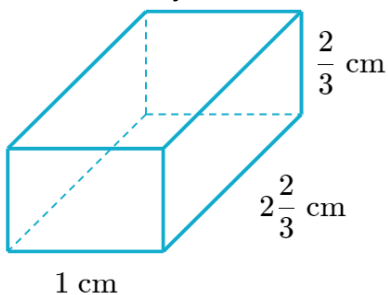
27. _____

Find how many cubes will fit in each shape.

28. How many cubes with the side lengths of $\frac{1}{4}$ cm will fit in the following shape? 28. _____

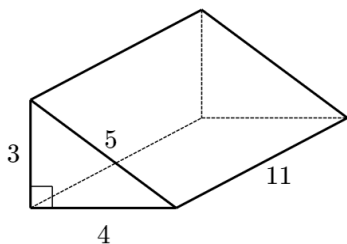


29. How many cubes with the side lengths of $\frac{1}{3}$ cm will fit in the following shape? 29. _____

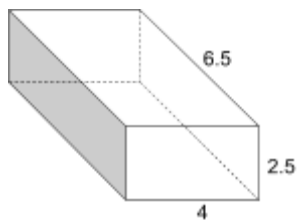


Find the surface area of each shape.

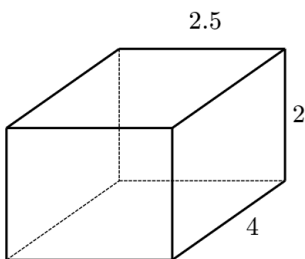
30. 30. _____



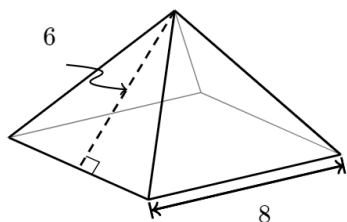
31. 31. _____



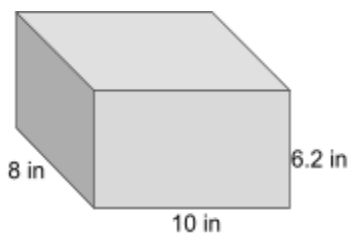
32. 32. _____



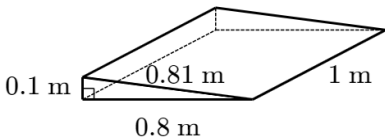
33. 33. _____



34. Ezra wants to paint the following box to decorate it. How much surface area will he have to paint, if he wants to paint the box without the bottom of it?
34. _____



35. A hockey rink built a ramp to make their facility more accessible to people in wheelchairs. How much metal did they use to cover the whole ramp?
35. _____



Answer the following questions about polygons on the coordinate plane.

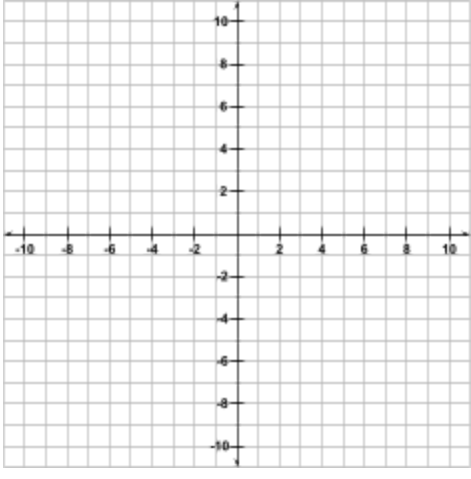
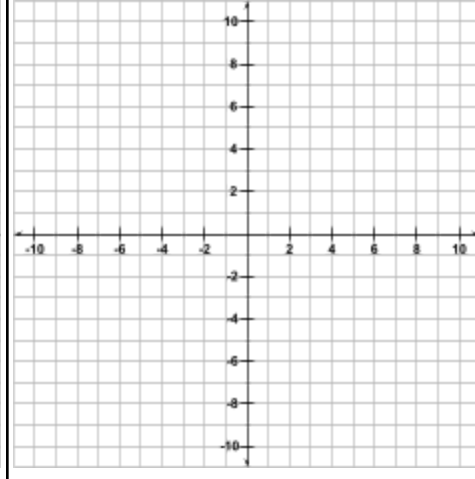
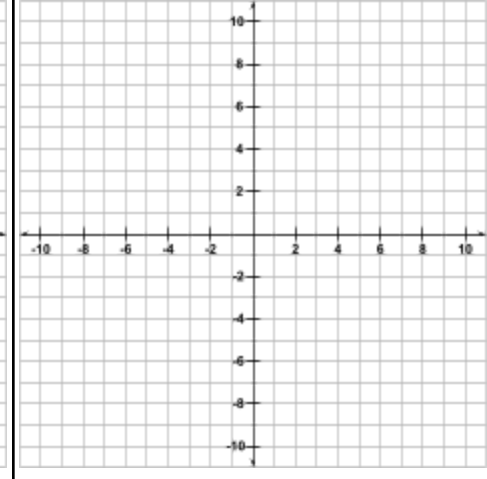
Given the upper left (UL) and upper right (UR) coordinates of a rectangle along with its area (A), draw the rectangle on the coordinate plane. Also write the coordinates for the missing points.

36. UL (-5,9) UR (2,9) A = 35u²	37. UL (1,2) UR (7,2) A = 18u²	38. UL (-7,0) UR (0,0) A = 49u²
--	---	--

39. Does coordinate a or coordinate b represent a greater number?	<u>Pick One</u> Coordinate A Coordinate B	40. Does coordinate a or coordinate b represent a greater number?	<u>Pick One</u> Coordinate A Coordinate B
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Answer the following questions about polygons on the coordinate plane.

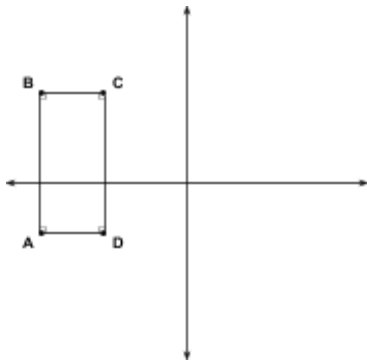
Given the upper left (**UL**) and upper right (**UR**) coordinates of a rectangle along with its perimeter (**P**), draw the rectangle on the coordinate plane. Also write the coordinates for the missing points.

41. UL (-8,2) UR (-5,2) P =24u 	42. UL (4,4) UR (8,4) P = 18u 	43. UL (-4,-4) UR (8,-4) P = 34u 
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44. Rectangle **ABCD** has the following coordinates:

A(-6,-3), **B**(-6,7), and **C**(-3,7)

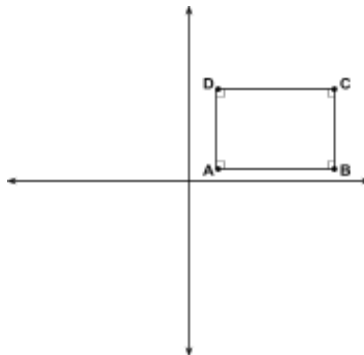
What are the coordinates for point **D**? (,)



45. Rectangle **ABCD** has the following coordinates:

A(3,2), **B**(6,2), and **C**(6,10)

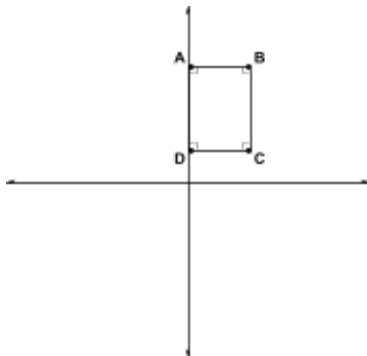
What are the coordinates for point **D**? (,)



46. Square **ABCD** has the following coordinates:

A(0,8), **B**(3,8), and **C**(3,2)

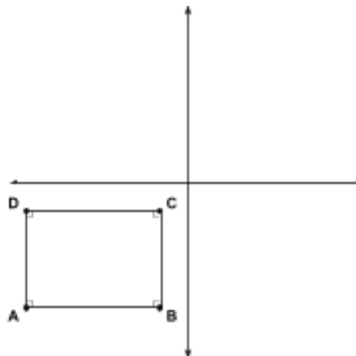
What are the coordinates for point **D**? (,)



47. Rectangle **ABCD** has the following coordinates:

A(-9,-7), **B**(-2,-7), and **C**(-2,-2)

What are the coordinates for point **D**? (,)



Extra Work Space

Please use this page for extra space to do your work.

Extra Work Space

Please use this page for extra space to do your work.