Name: _____

Geometry Prerequisites

In order to be successful in Geometry, you will need to be able to recall information from previous years. Some of this information may seem easy to you now since it dates back to elementary school and some may still be difficult. Unfortunately, there is not enough time in the Geometry curriculum to spend time reviewing the years before. Geometry will also build on itself in the year so being organized and keeping on top of your work is going to be great help.

Supply list – start organizing yourself before the year begins and allow your parents to buy items during sales.

- **Binder** (this may be a separate 1 inch binder or you may have a Geometry section in another binder
- **5 Dividers**
- **Graph Paper** (perforated hole-punched composition book is preferred)
- **Loose leaf paper**
- **Pencils**
- **Colored Pencils**
- **Highlighters**
- **Protractor**
- **Orange Safety Compass** (can be purchased from the school store)
- **Sticky Notes** (ex. Post-its)
- **Index Cards**
- **TI Nspire** (OPTIONAL – we do have a class set, but they may not be taken home. For those that can afford it now it is a great investment as you prepare for PSAT, SAT and ACT, but it is not necessary)

An outline of the Geometry curriculum is provided below. After you work through the review, you may wish to explore these topics.

Semester 1

Logical Reasoning and Basic Vocabulary
Angle Vocabulary and Properties
Coordinate and Transformational Geometry
Triangle Similarity and Congruence
Special Segments in Triangles

Semester 2

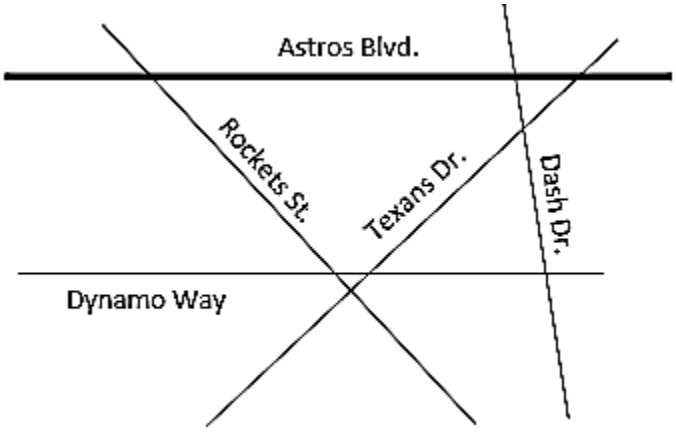
Polygons and Quadrilaterals
Special Right Triangles and Trigonometry
Circle Relationships
2-D Figures
3-D Figures
Probability

4th Grade

Use the diagram below to answer the following questions.

1. Name 2 streets that appear to be parallel. _____

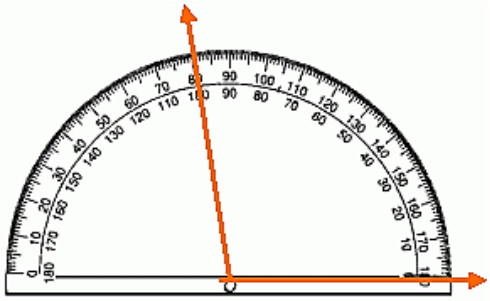
2. Name 2 streets that appear to be perpendicular. _____



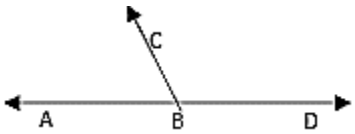
3. If I cut an 8 inch pie into thirds, what is the angle measure of each slice? _____

4. Name the type of angle below._____What is its angle measure? _____

5. Name the type of angle below._____What is its angle measure? _____



6. Angle ABC is 47°, what is the measure of angle CBD? _____

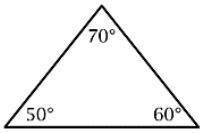


7. How many lines of symmetry does the following figure have? _____

8. How many inches are there in 7 feet 5 inches? _____

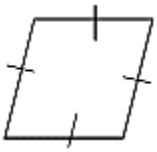
9. Classify the triangle by sides and angles.

_____ _____



10. Draw a right, isosceles triangle.

11. Circle the terms that apply to the following figure.

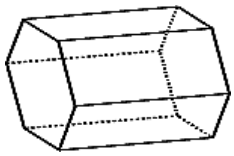


Quadrilateral	Trapezoid
Parallelogram	Isosceles Trapezoid
Rectangle	Kite
Rhombus	Square

12. Name all other properties of the figure in #10. _____

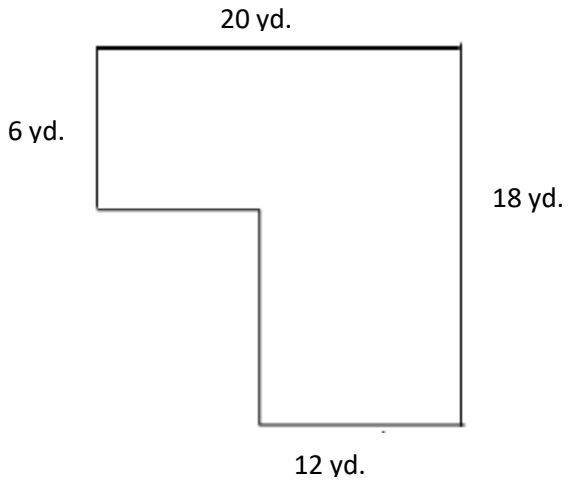
_____

13. How many faces, vertices and edges are on the following figure? _____ _____ _____



14. Jerry bought 1/4 pounds of grapes and $2/3$ pounds of bananas, how many pounds of fruit did Jerry buy?

15. Find the area of the following shape. _____



6th grade

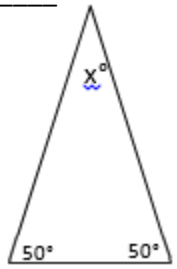
16. Amanda is sewing a flag for a competition. The dimensions of her flag are shown below. Approximately, how many square yards of black material will Amanda need to make the flag? _____

$4.5\ yd$

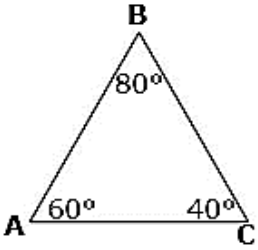
$12\frac{1}{6}\ yd$

17. Write an **equation** that can be used to solve for x. _____

Now find x. _____

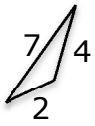


18. List the **sides** in order from shortest to longest. _____ _____ _____

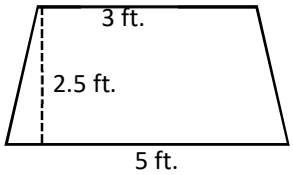


19. Is the following a triangle based on its side lengths. Explain your reasoning.

_____



20. Find the area of the trapezoid. _____

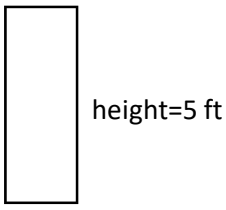


21. Adan is flying to see his grandmother over summer break and needs to buy a suitcase. The airline will accept suitcases with a maximum volume of 2000 in^3. Adan has so much to pack that he wants to buy a suitcase that will hold the maximum amount. He chooses a suitcase with a length of 12 inches and a height of 20 inches. What is the width of the suitcase that he bought? _____

22. Examine the information given in the table below. Which shape has the greatestarea? _____

Shape	Base Length (in cm)	Height (in cm)
Triangle	12	18
Rectangle	12	11
Parallelogram	25	4
Trapezoid	b_1=10 b_2=14	10

23. Madison wants to decorate her friend Claire's locker for her birthday. Each package of glitter birthday wrapping paper will cover 100 square inches of area. A drawing of Claire's locker is given below. Madison has seven packages of wrapping paper. If she decorates the entire width of the locker, assuming no overlap, what height of the locker will be covered?



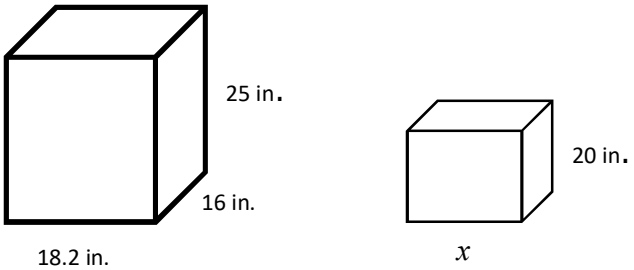
width=12.5 in.

7th grade

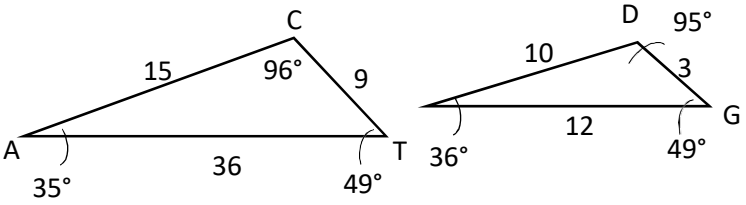
24. A rectangular room has a ratio of the length to width of 5:3. If the length is 15 ft, what is the width? _____

25. A length of an architect's scale drawing of a new bathroom is 5.2 inches. The scale used in the drawing is 3 inches equals 12 feet. What is the actual length, in feet, of the bathroom? _____

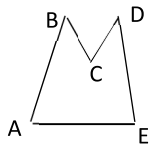
26. The two rectangular prisms are similar, find the value of x to the nearest tenth. _____

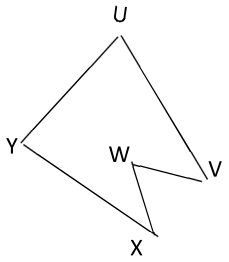


27. Triangles CAT and DOG are shown below. Are the triangles similar? _____ Explain.



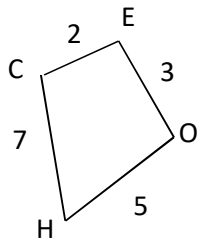
28. Figure ABCDE is similar to figure UVWXY. Which angle is congruent to angle X? _____

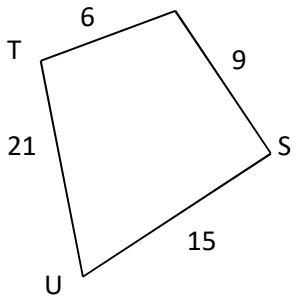




29. Quadrilateral CEOH is similar to quadrilateral TLSU. What is the scale factor? _____ Finish the proportion.

$\frac{EC}{} = \frac{}{21}$





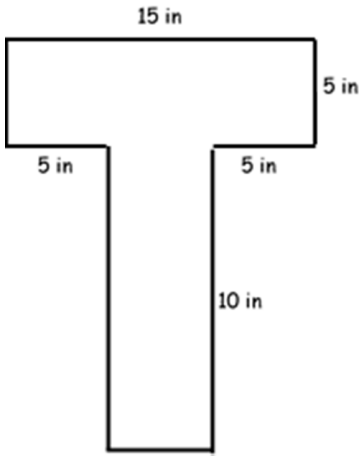
30. If the diameter of a basketball rim is 18 inches. What is the approximate circumference of the basketball rim?

_____

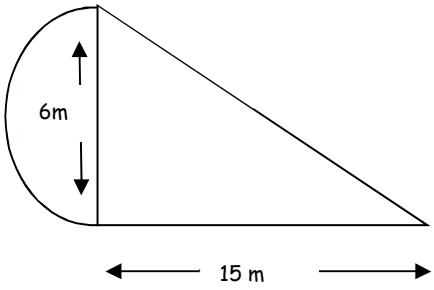
31. The circumference of a personal sized pizza at Center Court Pizza is 12.56 inches. Their large pizza is three times the diameter as the personal sized pizza. What is the area of the large pizza? _____

32. Patty has 3 identical circular flower beds in her yard. The distance from one end and through the center of the flower bed to the other end is 4.4 feet. What is the total approximate area of her flower beds? Round to the nearest tenth. _____

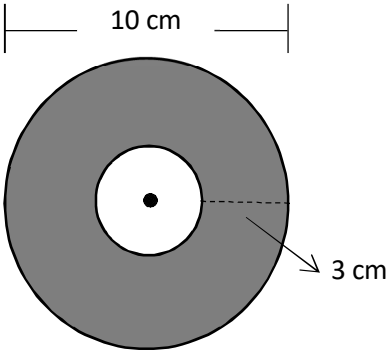
33. Find the area of the following figure. _____



34. Find the area of the area of the following figure.



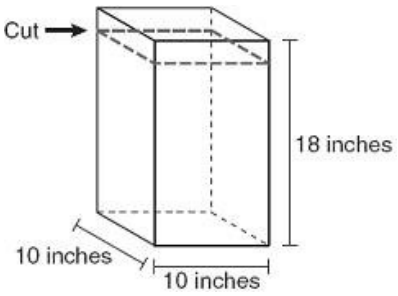
35. Tom is painting a tire of a truck in his coloring book black. The tire is represented by the shaded region in the picture shown below. About how much of the tire was painted black?



36. James is making boxes. He starts with the rectangular prism shaped box which is shown below.

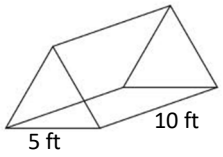
If James cuts off a $3\frac{3}{5}$ inch strip around the top of the box,

what is the volume of the new box? _____

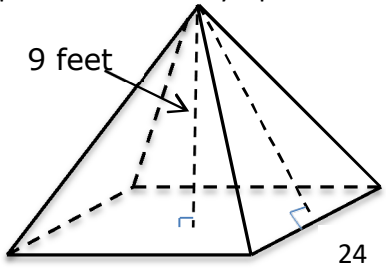


37. The triangular prism below has a volume of 150 cubic feet. What is the height of the triangular base?

_____

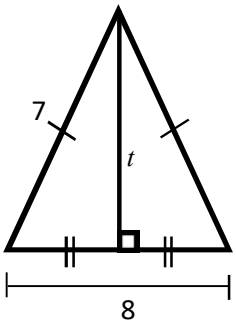


38. The front, back and sides of the square pyramid below will be painted. How many square feet of paint will be needed? _____



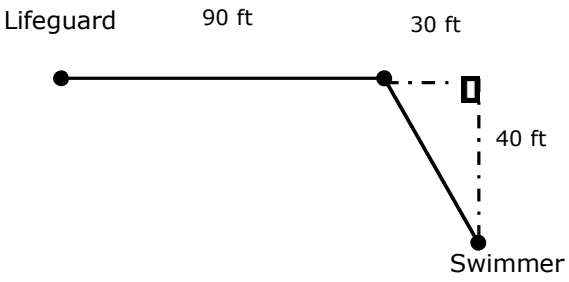
8th grade

39. Susan and her friends are going on a camping trip at Brazos State Park. She needs to bring her tent, however the support pole is broken and she will need to buy a new one. Based on the dimensions shown in the figure below, approximately how long is the support pole, t, for Susan's tent?

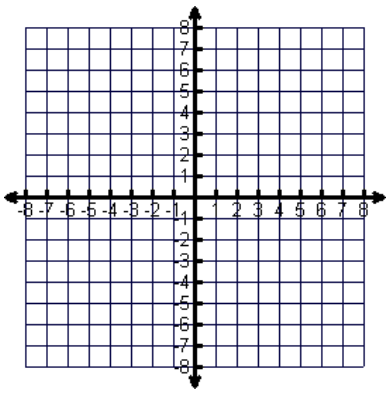


40. Courtney's soccer coach is having the team run drills to warm up before their game. The coach instructed the team to run from one corner of the soccer field to the corner diagonally across from them. If a soccer field measures 90 meters wide and 120 meters long, how far will Courtney run if she only runs the drill twice?

41. A lifeguard spots a swimmer in need of help 40 feet from the beach. She runs 90 feet along the beach at a speed of 5 feet per second, then jumps into the water and swims directly to the swimmer at a speed of 2 feet per second. How long does it take her to reach the swimmer?



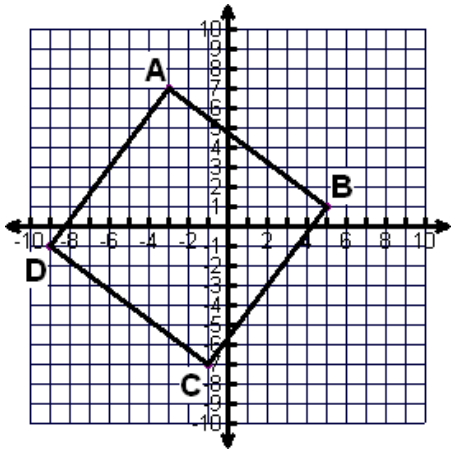
42. Find the distance and midpoint between (-4, 6) and (2, -3).Justify your answer.



Distance _____

Midpoint _____

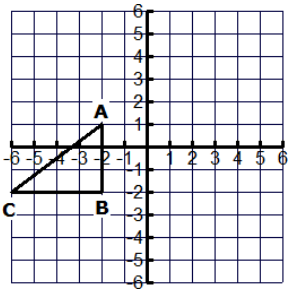
43. Find the length of one side of square ABCD. _____



44. Reflect the image of ΔABC using $(x, y) \rightarrow (-x, y)$

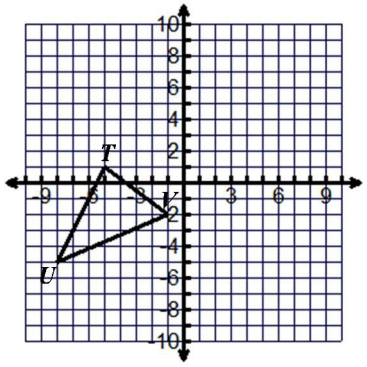
What is the length of the image of side A'C'?

_____

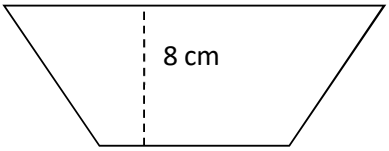


45. Triangle TUV is dilated using the notation $(x, y) \rightarrow (4.25x, 4.25y)$. If the graph shows ΔTUV, what are the coordinates for the vertices of $\Delta T'U'V'$? Explain the effect of this dilation on ΔTUV. Does this dilation represent a reduction or an enlargement?

_____

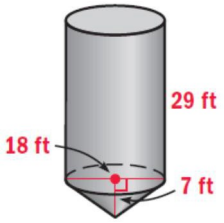


46. The trapezoid below has an area of 64 cm^2. If the trapezoid is dilated so the new height is 6 cm, what is the area of the new trapezoid? _____



47. The measure of the vertex angle of an isosceles triangle is 10 more than one-half of the measure of one base angle. What is the measure of the vertex angle? _____

48. Silos are used to store grain that has been harvested. If the silo is full with grain, what is the approximate capacity of the silo shown above? ____



49. Marble Slab Creamery has different size ice cream cones. The kids' cones can hold 4 cubic inches of ice cream and has a height of 4 inches. The medium adult cone can hold 22 cubic inches of ice cream and has a height of 5 inches. What is the approximate difference in the diameter of the two cones? _____

Simplify the following using radical form. (No decimals. No rounding.)

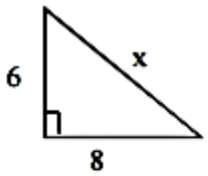
50. $\sqrt{24}$ 51. $\sqrt{98}$ 52. $2\sqrt{80}$ 53. $5\sqrt{18}$ 54. $5\sqrt{300}$

55. $\sqrt{\frac{1}{4}}$ 56. $\frac{\sqrt{5}}{\sqrt{3}}$ 57. $\sqrt{\frac{80}{25}}$ 58. $\frac{2\sqrt{3}}{\sqrt{12}}$ 59. $\sqrt{\frac{250}{48}}$

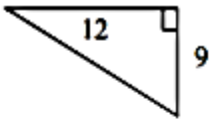
60. $\sqrt{13^2}$ 61. $(\sqrt{17})^2$ 62. $(2\sqrt{3})^2$ 63. $(3\sqrt{8})^2$ 64. $(9\sqrt{2})^2$

Use Pythagorean Theorem to determine the missing side. Write your answer as a simplified radical.

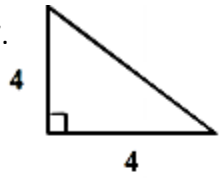
65.



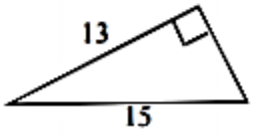
66.



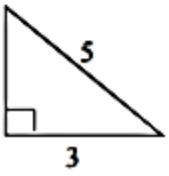
67.



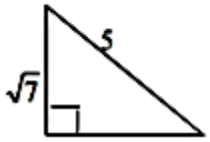
68.



69.



70.



Algebra 1

Solve the following proportions.

71. $\frac{7}{2} = \frac{y}{3}$

72. $\frac{7}{3} = \frac{21}{x}$

73. $\frac{25}{15} = \frac{10}{x}$

74. $\frac{10}{6x+7} = \frac{6}{2x+9}$

75. $\frac{4}{x-3} = \frac{6}{x+3}$

76. $\frac{3x-5}{2} = \frac{x-15}{4}$

77. $\frac{2-4x}{-6} = \frac{6x-8}{10}$

78. $\frac{x+2}{5} = \frac{4}{x+1}$

79. $\frac{2}{x-3} = \frac{x-2}{6}$

Solve the following equations:

80. $6(3x + 1) - 30 = 3(2x - 4)$

81. $-6(3 - x) + 4 = 5x - 11$

82. $7x = -3(x + 2)$

83. $-3(2x + 1) = -8x + 25 - 16$

84. $3(x - 7) = 27 + 4x$

85. $-10x + 3(8 + 8x) = -6(x - 4)$

86. $-6(3 - q) + 4 = 5q - 11$

87. $6(3a + 1) - 30 = 3(2a - 4)$

88. $5h - 7 = -(h - 2) + 3$

89. $3(x + 2) = -5 - 2(x - 3)$

90. $2x - 33 = -6(1 + 5x) + 5x$

91. $3x - 4(3x + 8) = -6x - 23$

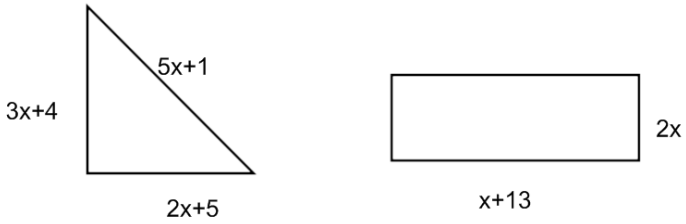
92. $2(x - 3) = \frac{1}{2}(4x - 12)$

93. $8(x + 5) = 50 + 8x$

94. $x^2 - 15x + 50 = 0$

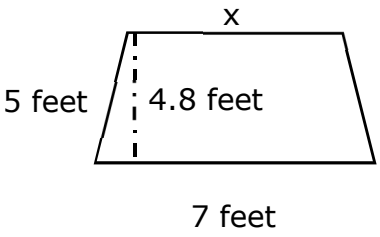
95. $x^2 + 3x - 18 = 0$

96. Find the value of x so that the figures have the same perimeter. (Show your equation.)

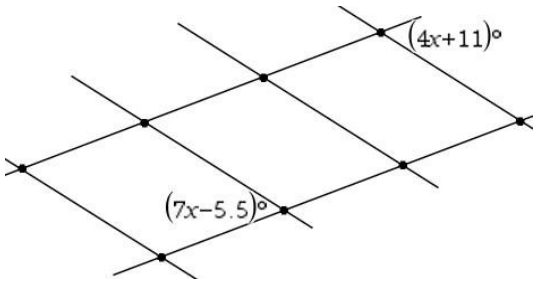


97. The isosceles trapezoid shown below has an area of 26.4 feet. What is the measure of x?

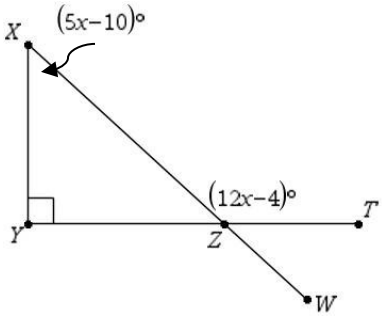
_____



98. Karla is making a quilt with a pattern of parallel lines that crisscross each other. At what obtuse angle do the lines intersect? _____



99. Given the figure below. What is the measure of $\measuredangle TZW$? _____



100. Given the algebraic representation of a linear transformation $(x, y) \rightarrow (3x - 4\ ,\ \frac{1}{5}y - 2)$, what transformations are occurring?