



**"Transform Obstacles
into Opportunities"**

MCCS Middle and High Summer Packet

NAME: _____

Subject: Geometry

Directions:

- Please complete this packet over the summer.
- It will be collected by your Math teacher during the first day of school, on August 20th, 2018.
- You will be given a GRADE based on the work you complete over the summer.
- All work must be shown to receive credit.
- After reviewing the summer packet in class, a QUIZ will be administered on each of the essential topics.

Name: _____

Summer Packet Answer Sheet

Please use this sheet to record your answers to the geometry summer packet

1. _____

19. _____

2. _____

20. _____

3. _____

21. _____

4. _____

22. _____

5. _____

23. _____

6. _____

24. _____

7. _____

25. _____

8. _____

26. _____

9. _____

27. _____

10. _____

28. _____

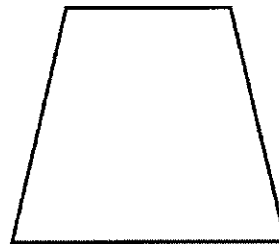
11. _____

29. _____

12. _____

30.

13. _____



14. _____

15. _____

16. $m =$ _____

17. _____

18. _____

Page 2: Answer Sheet

31. A = _____

48. A = _____

32. _____

49. A = _____

50. _____

33. _____

51. A = _____

52. _____

34. _____

53. _____

35. _____

54. _____

36. _____

55. m = _____

37. _____

56. _____

38. _____

57. _____

39. _____

58. w = _____

40. _____

59. b = _____

41. _____

60. _____

42. _____

43. _____

44. _____

45. _____

46. _____

47. _____

Name:

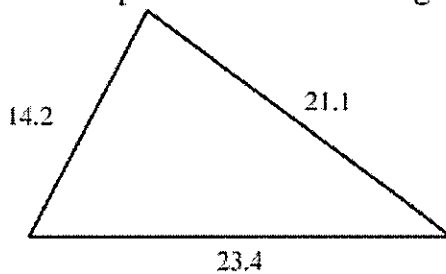
Geometry

Date:

Summer Packet

Showing all your work, complete each of the following problems.

1. Find the perimeter of the triangle shown.



2. Evaluate $5t + 4u$ when $t = -4$ and $u = 2$.
3. Evaluate $8x + (5 - 5x)$ when $x = 5$.
4. Evaluate the expression $16 + 12x - x^3$ when $x = 3$.
5. Is $x = 4$ a solution of the equation $2x - 4 = 8 + x$?
6. Is 3 a solution of $5x + 3 \geq 17$?
7. Simplify the expression $3(2 - x) - 2(3 - x)$.
8. Simplify: $6x + 7(x - 3)$
9. Multiply $(x - 3)(x + 7)$

Solve the equation for the variable:

10. $4x + 8 = 21$

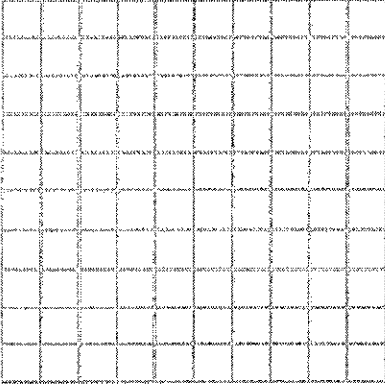
11. $\frac{y+1}{2} = 9$

12. Solve: $5n + 16 - 7n = 30$

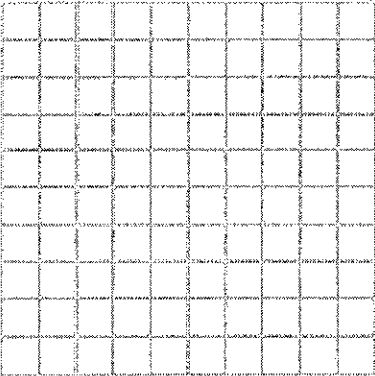
13. Solve the equation: $5x + 14 - 2x = 9 - (4x + 2)$

14. Solve: $x - 7 = -2x - 4$

15. Sketch the graphs of $x = -5$ and $y = 3$. Find the point at which the two graphs intersect.



16. Plot the points and find the slope of the line passing through the points $(3, -5)$ and $(5, 4)$.



17. Find the slope of the line through the points $(4, 7)$ and $(-6, 2)$.

18. A real estate sales agent receives a salary of \$250 per week plus a commission of 2% of sales. Write a linear model for the weekly income y in terms of sales x .

19. Solve the inequality $4 - 3x \geq x + 3$.

20. Simplify: $\sqrt{\frac{81}{25}}$

21. What is the Pythagorean Theorem? Write the equation.

22. Factor the polynomial $(x^2 - 5x - 36)$

23. Solve the proportion $\frac{18}{x-2} = \frac{4}{3}$

24. Solve: $\frac{j}{5} = \frac{4}{100}$

25. A bus travels 150 miles on 6 gallons of gas. How many gallons will it need to travel 725 miles?

Simplify by giving the exact answer. NO DECIMALS!

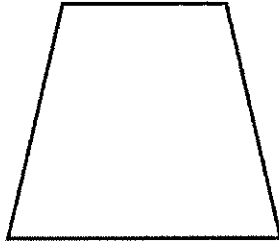
26. $\sqrt{18}$

28. $2\sqrt{5} + 7\sqrt{5}$

27. $\sqrt{147}$

29. $3\sqrt{2} + 6\sqrt{2}$

30. For the figure below, draw all the lines of symmetry. If there are none, write “none.”

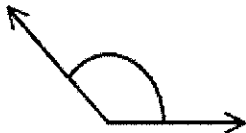


31. A square has a perimeter of 20 inches. Draw a diagram and find its area.

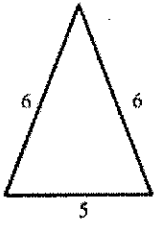
32. What is a right angle? Give the definition or an example.

33. What is an acute angle? Give the definition or an example.

34. Assuming the figure is drawn to scale, classify the angle as acute, right, obtuse or straight.

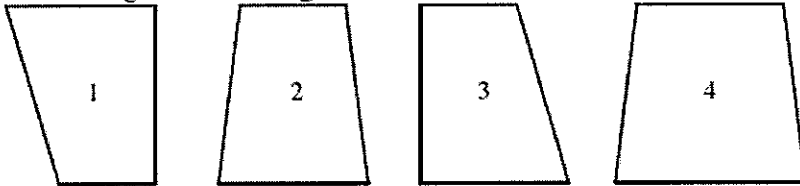


35. Identify the triangle as scalene, isosceles, or equilateral.



36. Classify the triangle with angles measuring 105° , 55° , and 20° .

37. Which figures are congruent?



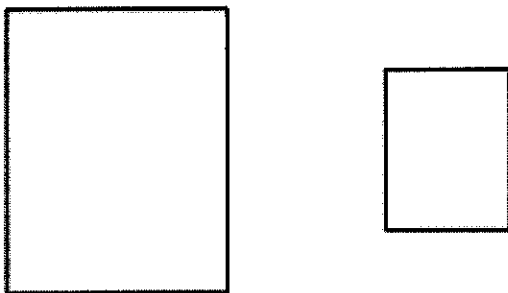
[A] 1 and 2

[B] 2 and 4

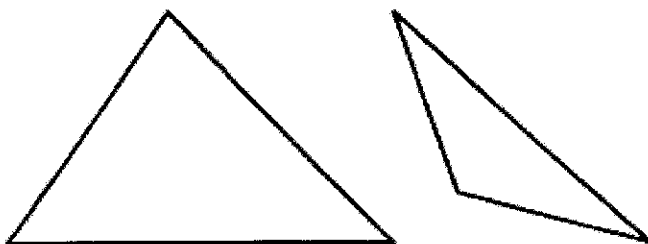
[C] 2 and 3

[D] 1 and 3

38. Tell whether the pair of polygons is congruent, similar, or neither.



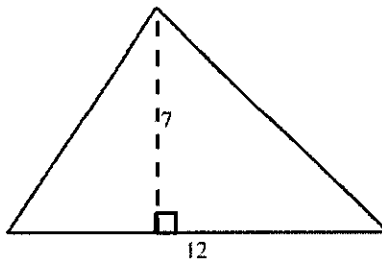
39. Tell whether the polygons are congruent, similar, or neither.



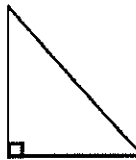
(40 – 47) Name the polygon with the specified number of sides.

- 40. 4 sides
- 41. 5 sides
- 42. 6 sides
- 43. 7 sides
- 44. 8 sides
- 45. 9 sides
- 46. 10 sides
- 47. 12 sides

48. Find the area of the triangle.



49. Measure the height and the base. Then find the area.



50. Find the circumference of a circle whose diameter is 12 centimeters. Use 3.14 for π

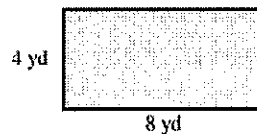
51. Find the area of a circle whose radius is 6 cm. Keep an exact answer. (hint: π is in the answer)

52. Is the ordered pair (5, -4) a solution of $3x - y = 19$?

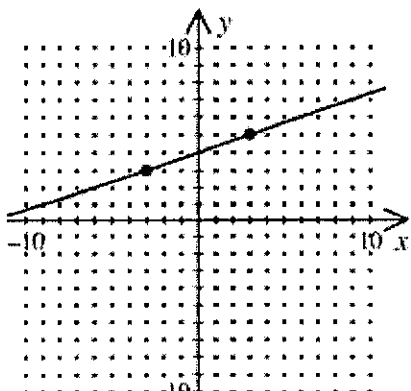
53. Use the equation $y = \frac{5}{9}(x - 32)$, which relates temperature in degrees Celsius, y , to temperature in degrees Fahrenheit, x . What is the temperature in Celsius when the temperature in Fahrenheit is 95° ?

[A] 113° [B] 49° [C] 35° [D] 203°

54. Find the ratio of the rectangle's width to its length. Then simplify.



55. Find the slope of the line.



56. Find the missing number in the following pattern.

$$2, 1, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \text{---}$$

57. A blueprint has a scale factor of one-fourth inch to one foot. On the blueprint, a wall is 3.25 inches long. How long is the actual wall?

58. Solve for "w" (Isolate "w" from the following equation): $P = 2L + 2w$

59. Solve for b (get b_1 by itself) in the following equation: $A = \frac{h(b_1 + b_2)}{2}$

60. Solve the system of equations.

$$2x + y = 5$$
$$x - y = 1$$

Geometry - Essential Mathematical Terms

Listed below are mathematical terms that you should be familiar with before beginning geometry. As you work through your packet, use these terms and definitions to help you respond to the problems.

Acute angle- an angle with a measure less than 90°

Acute triangle- a triangle with all three angles less than 90°

Area of a circle- area = πr^2

Area of a parallelogram- area = bh

Area of a rectangle- area = lw

Area of a triangle- area = $\frac{1}{2}bh$

Circumference- circumference = $2\pi r$

Complementary angles- angles whose measure add up to 90°

Congruent - two figures are congruent if they have the same size and shape

Equilateral triangle - a triangle with three congruent sides

Heptagon - a polygon with 7 sides

Hexagon - a polygon with 6 sides

Hypotenuse - in a right triangle, the side that is opposite the right angle, also the longest side

Isosceles triangle - a triangle with two congruent sides

Obtuse angle - an angle with a measure that is more than 90° but less than 180°

Obtuse triangle - a triangle with an obtuse angle

Octagon - a polygon with 8 sides

Parallelogram - a polygon with two pairs of parallel sides

Pentagon – a polygon with 5 sides

Perimeter – the distance around a two dimensional figure

Pythagorean theorem – For a right triangle, the sum of the squares of the legs equals the square of the hypotenuse. $a^2 + b^2 = c^2$

Quadrilateral – a polygon with 4 sides

Rectangle- a quadrilateral with 4 right angles

Reflection – a transformation that creates a mirror image

Reflectional symmetry – symmetry in which a line can be draw, splitting the image in half, where one side is the reflection of the other

Right angle – an angle with a measure of 90°

Right triangle – a triangle with a 90° angle

Rotation – a transformation in which a figure is turned about a fixed point

Rotational symmetry – A figure has rotation symmetry if you can rotate (or turn) that figure around a center point by fewer than 360 degrees and the figure appears unchanged.

Scalene triangle – a triangle with no congruent sides

Similar – figures are similar if their corresponding angles are congruent and corresponding sides are proportional

Slope - $m = \frac{y_2 - y_1}{x_2 - x_1}$ or $\frac{\text{rise}}{\text{run}}$

Square – a figure with four right angles and four congruent sides

Straight angle – an angle that measure 180°

Supplementary angles – angles with measures that add up to 180°

Translation – a transformation in which a figure is slid

Triangle – a polygon with 3 sides