

Summer Packet

Geometry

Note: You should be completing this packet if you completed Geometry this past school year.

Name _____

1. Follow the directions to complete the problems in the packet.
2. Show all your work.
3. Circle your final answer.

If you are having trouble, consult the following resources for help.

- **CPM:** <http://cpm.org/students/extraPractice.htm> (Under *Geometry Connections* - you can either download the full skill builders PDF or search by topic)
- **Brightstorm:** <http://www.brightstorm.com/math> (Look under the *Geometry* topics)
- **Coolmath:** <http://www.coolmath.com/reference/geometry-trigonometry-reference.html>

1. Simplify.

$$-2(3x-5) + 2x - 2(5-x)$$

2. Simplify.

$$6x - 7y - 2x + 13y$$

3. Solve and check.

$$13x - 99 = 187$$

4. Solve for x.

$$5x + 6 = 31$$

5. Solve for x.

$$\frac{x}{4} = \frac{7}{3}$$

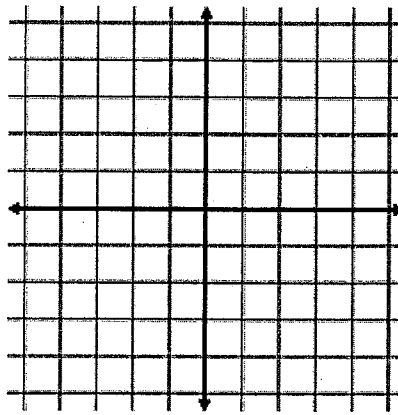
6. Solve for a.

$$2a + 3x = 4$$

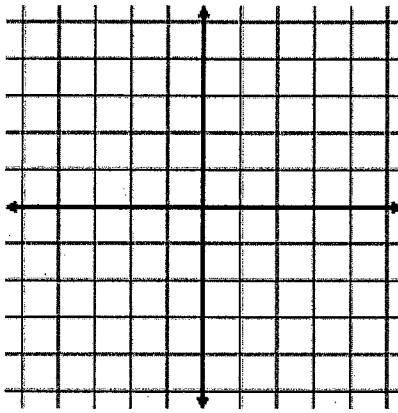
7. Fill in the chart for each equation.

| Equation | Slope | Y- Intercept |
|------------------------|-------|--------------|
| $y = \frac{1}{2}x + 4$ | | |
| $y = -x + 5$ | | |
| $y - 2x = 7$ | | |

8. Graph $y = 5x - 7$



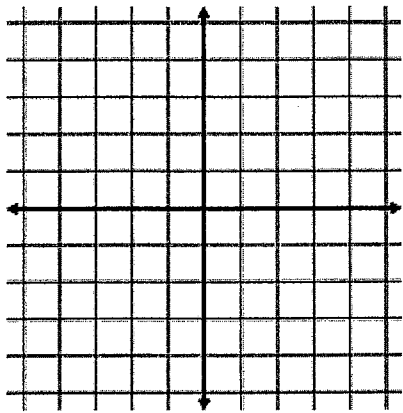
9. Graph $y - 2x = 9$



10. Where will the graph $y = 2x + 19$ cross the y-axis? Explain how you know.

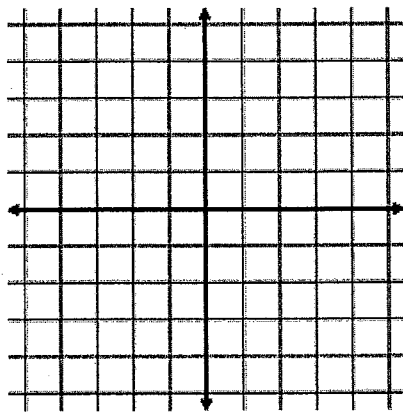
11. Plot the following points on the graph and rotate the figure 90 degrees clockwise.

A(4,4) B(4,-8) C(-3,-8) D(-3,4)

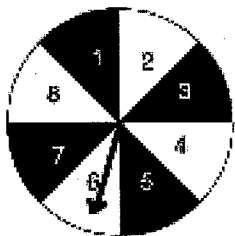


12. Plot the following points on the graph and rotate the figure 100 degrees counter clockwise.

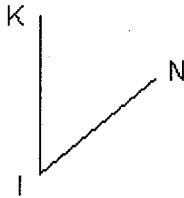
A(5,3) B(5,-6) C(-4,-6) D(-4,3)



13. Using the probability wheel below, what is the probability of landing on an even number?



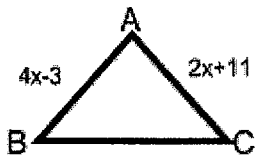
14. Classify the angle as acute, right, or obtuse.



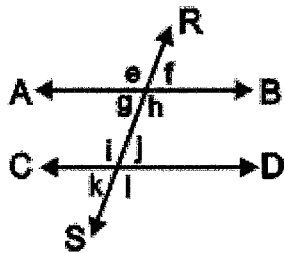
15. Write a conditional statement for the conjecture below.

Lines are parallel \rightarrow alternate interior angles are congruent.

16. $\triangle ABC$ is equilateral. Use what you know about an equilateral triangle to write and solve an equation for x . Then find the perimeter of $\triangle ABC$.



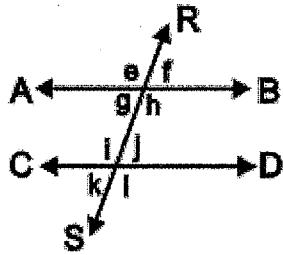
- 17.



Line RS is a transversal of line AB and line CD.

Name the alternate exterior angles.

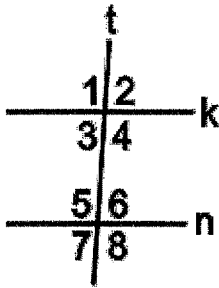
18.



Line RS is a transversal of line AB and line CD.

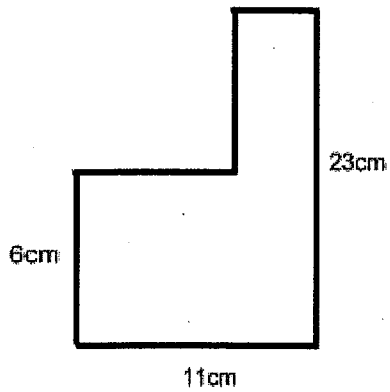
Name the corresponding angles.

19. In the diagram, k and n are two parallel lines cut by a transversal t . Which of the following relationship is NOT true?



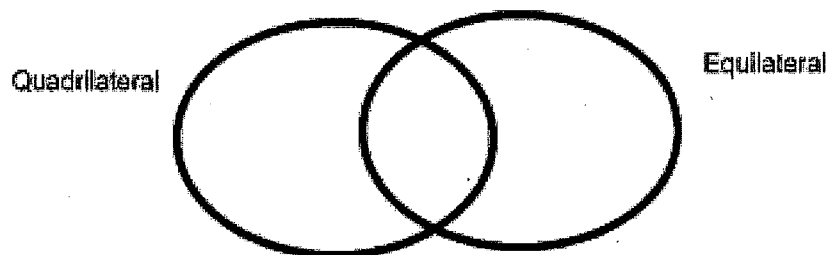
- (A) $m\angle 2 = m\angle 5$
- (B) $m\angle 1 = m\angle 8$
- (C) $m\angle 3 = m\angle 7$
- (D) $m\angle 4 = m\angle 5$

20. Find the area and perimeter of the figure below.



21. Will the length 4, 9, and 5 form a triangle? Explain why or why not.

22. Fill in the Venn diagram to categorize shapes.



23. An equilateral triangle has _____.

- A no congruent sides
- B only two congruent sides
- C all congruent sides

24. Given:

$\triangle BSH$

$$m\angle B = 26^\circ$$

$$m\angle S = 90^\circ$$

$$m\angle H = 64^\circ$$

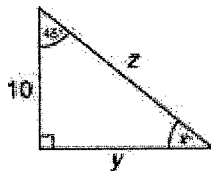
What is $\triangle BSH$?

- A an equiangular triangle
- B an acute triangle
- C a right triangle
- D an obtuse triangle

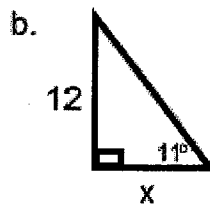
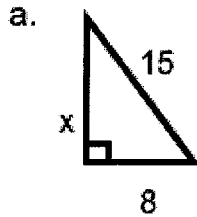
25. _____ of a triangle is the angle adjacent to an interior angle of a triangle that is formed when one of the sides of the triangle is extended.

- A An interior angle
- B A scalene
- C A complementary angle
- D A remote interior angle
- E An exterior angle

26. Special Right Triangles: What are the measurements of x , y , and z in Figure 4?

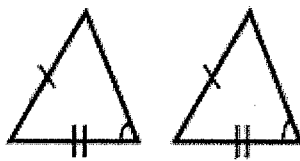


27. Find the length of the side labeled x in each diagram below. Note: the diagrams are not drawn to scale.

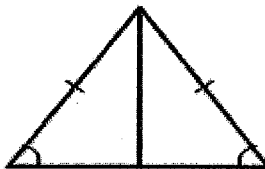


28. Find the length of the hypotenuse of a right triangle if the lengths of the other two sides are 4 inches and $4\sqrt{3}$ inches.

29. State whether or not each of the following triangle pairs is congruent. If so, state a reason.

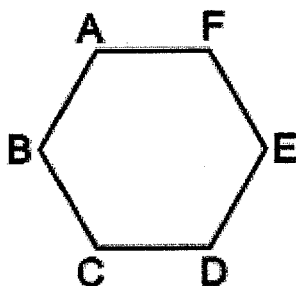


30. State whether or not each of the following triangle pairs is congruent. If so, state a reason.



31. What does it mean for two triangles to be congruent?

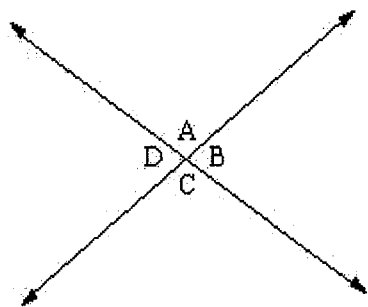
32. In regular hexagon ABCDEF, $AB = 20$. Find AD and CE.



33. Find the area of the trapezoid whose vertices are

$(5, 4)$, $(5, 7)$, $(-5, 7)$, and $(1, 4)$

34.



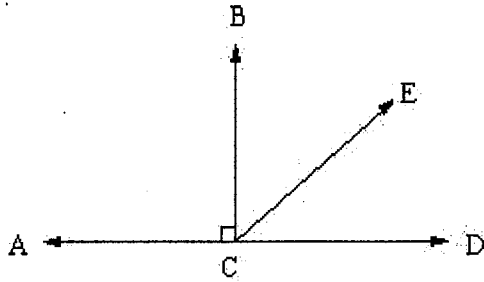
Given:

$$m\angle A = x - 2$$

$$m\angle C = 3x - 24$$

Find x .

35.



Given:

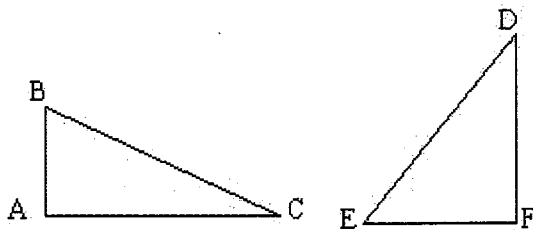
$$m\angle BCE = 8x - 34$$

$$m\angle DCE = 5x - 6$$

Find x.

36. A tree 42 feet tall casts a shadow 120 feet long. Paul is $3\frac{1}{2}$ feet tall. How long is Paul's shadow?

37. Justify the conclusion by identifying the property as reflexive, transitive, or symmetric.



Given:

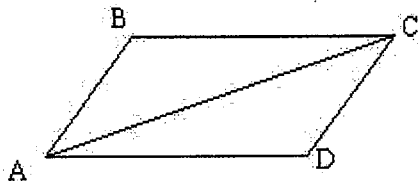
$$m\angle A = m\angle A$$

$$m\angle B = m\angle B$$

$$m\angle C = m\angle C$$

Prove: $m\angle A \cong m\angle A$

38. Justify the conclusion by identifying the property as reflexive, transitive, or symmetric.



Given:

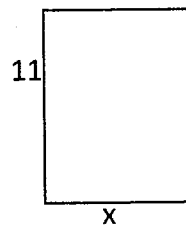
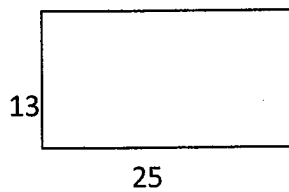
Line AC bisects $\angle BCD$

$m\angle DCA \cong m\angle DAC$

Prove:

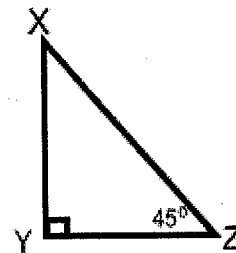
$m\angle BCA \cong m\angle DAC$

39. Similar Figures: Solve for x.



40. Using the given information, find the indicated length.

If $XY=7$, then $XZ=$

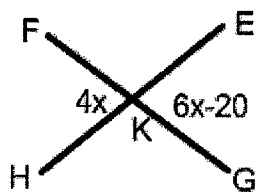


41. The length of the hypotenuse of a 30-60-90 triangle is 20. What is the length of the shorter leg?

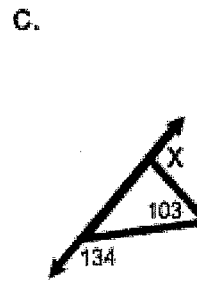
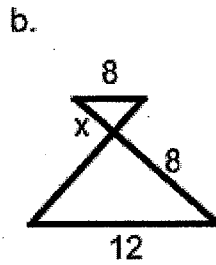
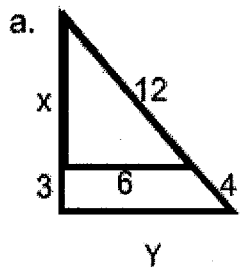
42. Solve for x



43. The measure of angle EKG is



44. Find x and/or y .



45. A regular polygon has an interior angle of 140 degrees.

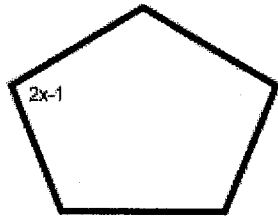
a. How many sides does the polygon have?

b. What is the sum of the angles of the polygon?

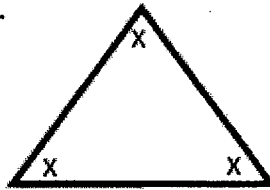
46. Find the area of a regular pentagon with an apothem length of 8 in.

47. Find the value of x in the figures below

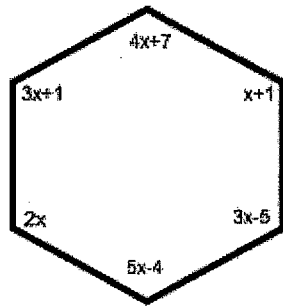
a.



b.



c.

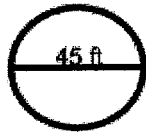


48. Find the area and circumference of the circles below.

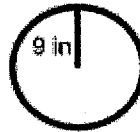
a.



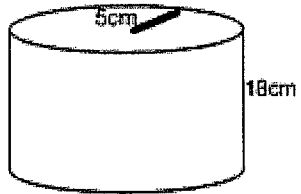
b.



c.

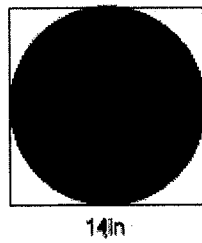


49. Find the volume of the cylinder below



50. Find the area of the shaded region. (Leave your answer in π form)

a.



b.

