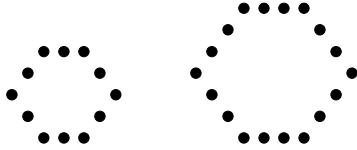


# Chapter 1 Review

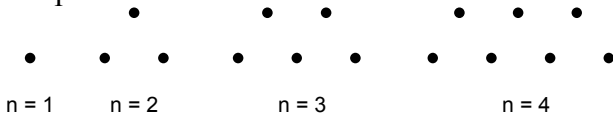
AMSAT Geometry Honors

Name: \_\_\_\_\_

1. Look at the set of dots below. Sketch the next figure, and predict the total number of dots in the 6th figure.

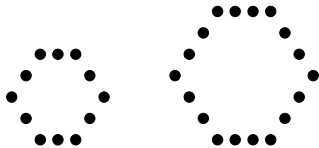


2. Complete the table.



$n$	1	2	3	4	5	6
$n$ th number	1	3	5	?	?	?

3. Explain what inductive reasoning is and give an example.
4. Make a conjecture about the pattern of the given data. Find the sum of the 6th row.  
 $1$   
 $1 + 3 + 1$   
 $1 + 3 + 5 + 3 + 1$   
 $1 + 3 + \dots + (2n - 3) + (2n - 1) + (2n - 3) + \dots + 1$
5. Sketch the next figure. Make a conjecture giving an expression for the number of dots in the  $n$ th figure.

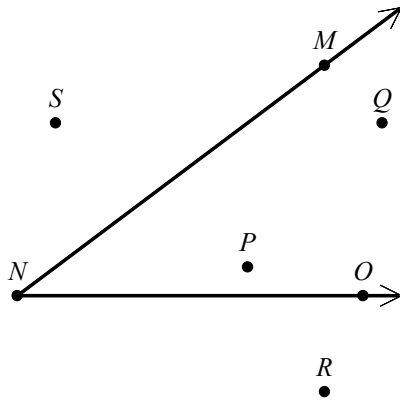


6. Give two examples that support the conjecture, and one counterexample that shows the conjecture is false. In the Cartesian plane, if the  $y$ -coordinate of a point is positive, then the point is in the first quadrant.

7. Draw a diagram illustrating the conjecture. Then, draw a counterexample diagram showing the conjecture is not true.  
The altitude from a vertex to the opposite side of a triangle lies within the triangle.

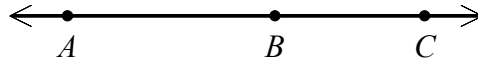
8. Give a counterexample to the following conjecture.  
All mammals cannot fly.

9. Name three points in the diagram that are not collinear.



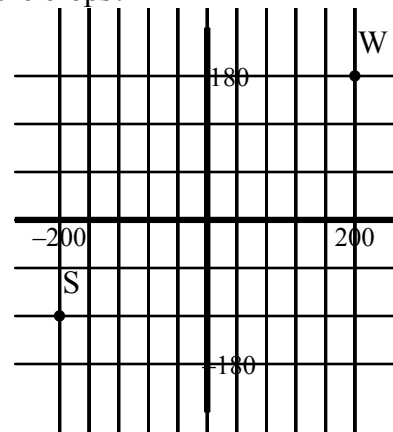
15. Draw a plane that intersects two planes.
16. Two distinct planes intersect. Describe their intersection. Draw a sketch to support your answer.
17. Sketch the intersection of a line and a plane.

18. If  $AB = 18$  and  $AC = 31$ , find the length of  $\overline{BC}$ .



19. Let  $A$  be between  $B$  and  $C$ . Use the Segment Addition Postulate to solve for  $u$ .  
 $BA = 6u + 12$   
 $AC = 4u + 18$   
 $BC = 40$

20. On a certain farm, individual crops are laid out in rectangles that are 60 feet north and south, and 40 feet east and west. How far would you have to walk to get from the shed (S) to the well (W) if you did not step on any crops? How far would it be if you walked diagonally across the crops?



10. Write the correct notation for a ray from  $Q$  through  $P$ .

11. Describe what the notation  $\overrightarrow{RS}$  stands for. Illustrate with a sketch.

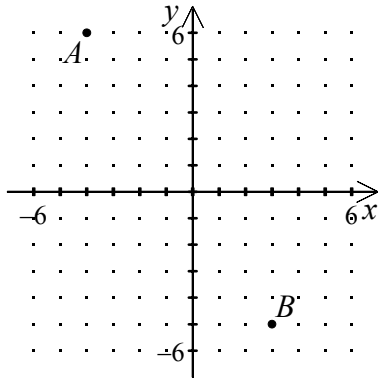
12. What do  $\overrightarrow{PQ}$  and  $\overrightarrow{QP}$  have in common?

13. Draw four points,  $A$ ,  $B$ ,  $C$ , and  $D$ , on a line so that  $\overrightarrow{AC}$  and  $\overrightarrow{AB}$  are opposite rays and  $\overrightarrow{AC}$  and  $\overrightarrow{AD}$  are the same ray.

14. Draw four points,  $A$ ,  $B$ ,  $C$ , and  $D$ , on a line so that  $\overrightarrow{CB}$  and  $\overrightarrow{CA}$  are opposite rays and  $\overrightarrow{CD}$  and  $\overrightarrow{CA}$  are the same ray.

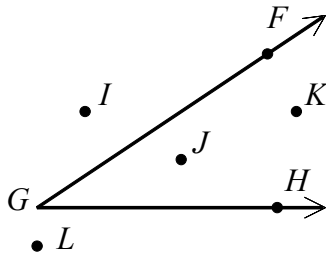
21. Find the distance between the points  $(6, -3)$  and  $(14, -9)$ .

22. Find the length of  $\overline{AB}$ .

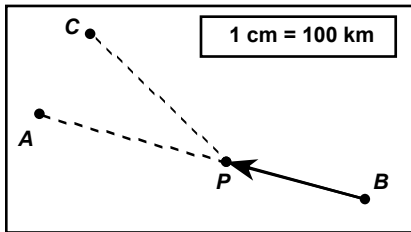


23. Draw an  $81^\circ$  angle using a protractor.

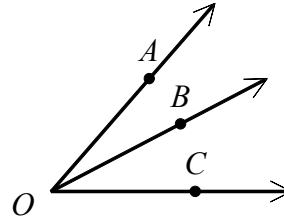
24. Name a point in the exterior of  $\angle FGH$ .



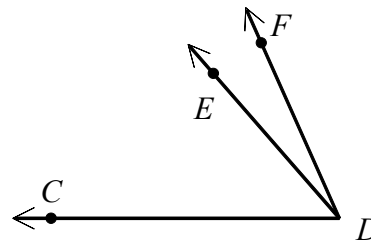
25. A pilot,  $P$ , is flying from City  $B$  toward City  $A$ . Use a centimeter ruler and a protractor to measure the course correction (from the  $\overleftrightarrow{AB}$  line) at  $P$  to divert to City  $C$  and the distance from  $P$  to  $C$ .



26. If  $m\angle AOC = 47^\circ$  and  $m\angle BOC = 26^\circ$ , then what is the measure of  $\angle AOB$ ?

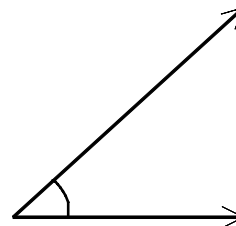


27.  $m\angle FDE = (2x + 7)^\circ$  and  $m\angle CDE = (10x - 1)^\circ$  and  $m\angle FDC = 66^\circ$ . Find  $m\angle FDE$  and  $m\angle CDE$ .



28.  $B$  is in the interior of  $\angle AOC$ .  $C$  is in the interior of  $\angle BOD$ .  $D$  is in the interior of  $\angle COE$ .  $m\angle AOE = 162^\circ$ ,  $m\angle COE = 68^\circ$ , and  $m\angle AOB = m\angle COD = m\angle DOE$ . Draw a sketch to show the relationship between the specified angles. Find  $m\angle DOA$ .

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

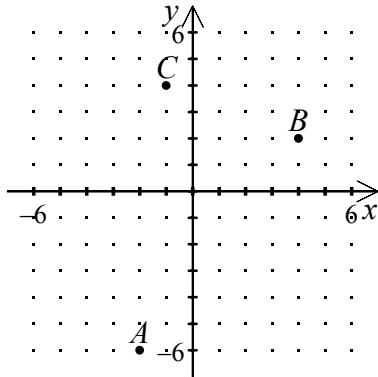


30. The measurement of angle  $D$  is  $31^\circ$ . Classify angle  $D$  as an acute, right, or obtuse angle.

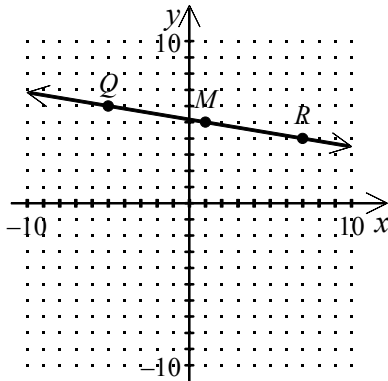
31.  $Y$  is a point in the interior of  $\angle AOB$ . Draw a sketch. Name two adjacent angles.

32. Point  $S$  is between points  $R$  and  $T$ .  $P$  is the midpoint of  $\overline{RS}$ .  $RT = 20$  and  $PS = 4$ . Draw a sketch to show the relationship between the specified segments. Find  $ST$ .

33. Find the length of the segment from point  $C$  to the midpoint of  $\overline{AB}$ .



34. The midpoint of  $\overline{QR}$  is  $M(1, 5)$ . One endpoint is  $R(7, 4)$ . Find the coordinates of the other endpoint.

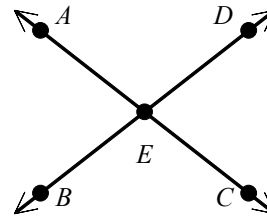


35. Use a ruler and protractor to draw a  $40^\circ$  angle and its bisector.

36. Find the measures of  $\angle PMN$  and  $\angle NMR$  if  $\overrightarrow{MN}$  bisects  $\angle PMR$ . The measure of  $\angle PMR$  is  $94^\circ$ . Draw a sketch that shows the given information.

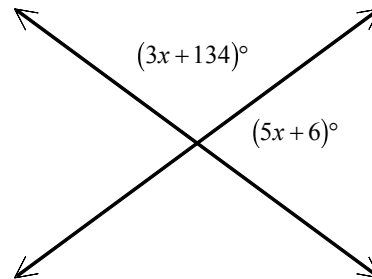
37.  $\overrightarrow{AB}$  bisects  $\angle LAX$  and  $\angle LAX$  measures  $76^\circ$ . Find the measure of  $\angle XAB$ .

38. In the figure shown,  $m\angle AED = 116^\circ$ . True or False:  $\angle AEB$  and  $\angle AED$  are adjacent angles and  $m\angle AEB = 64^\circ$ .

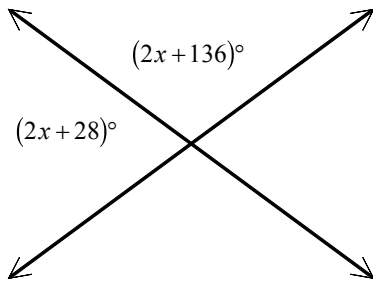


39.  $\overrightarrow{OR}$  and  $\overrightarrow{OP}$  are opposite rays.  $\overrightarrow{OQ}$  bisects  $\angle TOR$ .  $m\angle TOQ = 41^\circ$ . Draw a sketch and find  $m\angle TOP$ .

40. Solve for  $x$ :

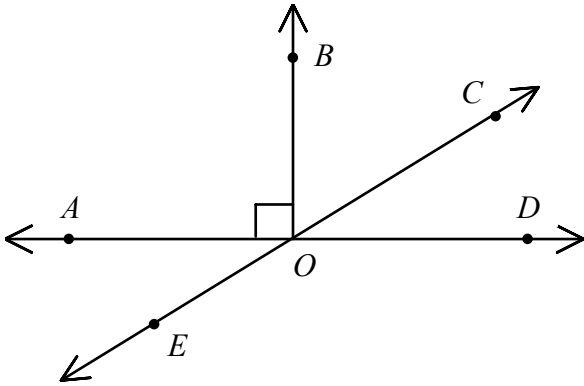


41. Solve for  $x$ :



42.  $\angle 1$  and  $\angle 2$  are a linear pair  $m\angle 1 = 73^\circ$ . Find  $m\angle 2$

43. Name an angle complementary to  $\angle COD$ .



44. Write a definition for supplementary angles.

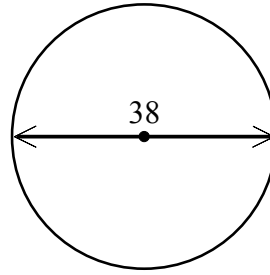
45. Define complementary angles.

46.  $\angle 1$  and  $\angle 2$  are supplementary angles  
 $\angle 1$  and  $\angle 3$  are vertical angles.  $m\angle 2 = 67^\circ$ .  
Find  $m\angle 3$

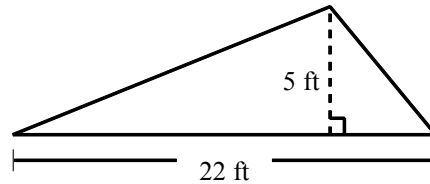
47. Find the perimeter and area of a rectangle with length 250 ft and width 45 ft.

48. Find the area of a circle with radius 27 cm.  
Use 3.14 for  $\pi$ .

49. Find the area and circumference of the circle.  
Leave in terms of  $\pi$ .



50. Find the area:



51. A play yard is 19 ft by 23 ft. A fence is to be built around the yard. How many feet of fencing will be needed? If fencing costs \$6.40 per foot, what will be the cost of the fence?

52. A can of paint will cover 70 square feet. How many cans of paint are needed to paint a wall 5 feet high and 98 feet long?

53. Your parents ask you to water the lawn. It is a square plot that is 15 ft on each side and it has a square cement fountain in the center that is 3 ft on each side. What is the area of the lawn that you will water?

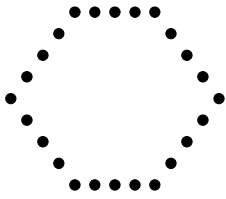
54. You are cutting out a triangular piece of cloth for your quilt. The piece of cloth is 9 inches in height with a base of 5 inches. What is the area of the cloth?

# Chapter 1 Review

AMSAT Geometry Honors

Name: \_\_\_\_\_

Reference: [1.1.1.1]



[1] 42

Reference: [1.1.1.3]

[2] 7, 9, 11

Reference: [1.1.2.5]

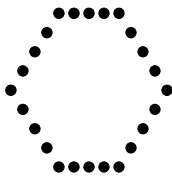
[3] Observe several cases and make a conjecture from them. Examples vary.

Reference: [1.1.2.6]

1, 5, 13, ...

[4] The sum of the  $n$ th row is  $2n^2 - 2n + 1$ . The sum of the 6th row is 61.

Reference: [1.1.2.7]



[5] The  $n$ th figure has  $6n + 6$  dots.

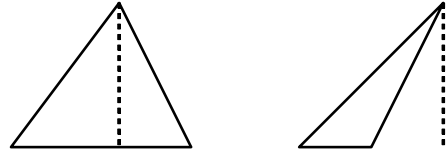
Reference: [1.1.2.8]

Answers will vary.

[6] For example, (2, 2) and (5, 3) are in the first quadrant, but (-4, 5) is not.

Reference: [1.1.2.9]

Answers will vary. For example,



[7] \_\_\_\_\_

Reference: [1.1.2.10]

Answers will vary. For example,

[8] bats are mammals that can fly.

Reference: [1.2.1.12]

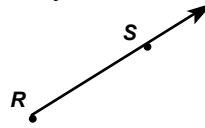
[9] Answers will vary.  $M$ ,  $S$ , and  $O$

Reference: [1.2.1.14]

[10]  $\overrightarrow{QP}$

Reference: [1.2.1.16]

A ray from  $R$  through  $S$



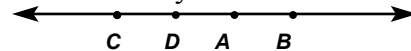
[11] \_\_\_\_\_

Reference: [1.2.1.17]

[12] All of the points on  $\overline{PQ}$

Reference: [1.2.1.18]

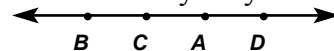
Sketches vary.



[13] \_\_\_\_\_

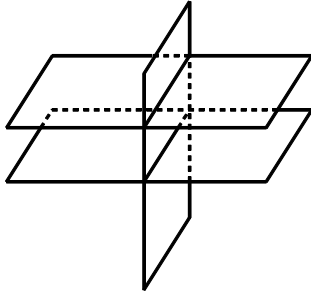
Reference: [1.2.1.19]

Answers may vary.



[14] \_\_\_\_\_

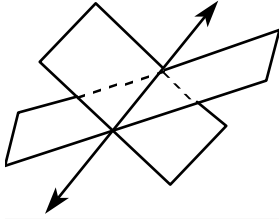
Reference: [1.2.2.20]



[15] \_\_\_\_\_

Reference: [1.2.2.21]

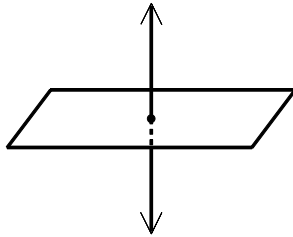
They intersect in a line.



[16] \_\_\_\_\_

Reference: [1.2.2.22]

Sketches vary.



[17] \_\_\_\_\_

Reference: [1.3.1.24]

[18] 13

Reference: [1.3.1.26]

[19]  $u = 1$

Reference: [1.3.2.30]

[20] 700 feet; about 500 feet

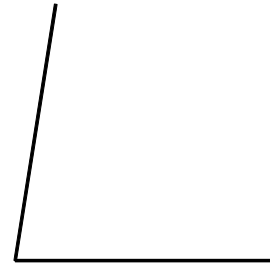
Reference: [1.3.2.33]

[21] 10 units

Reference: [1.3.2.34]

[22]  $\sqrt{170}$

Reference: [1.4.1.38]



[23] \_\_\_\_\_

Reference: [1.4.1.39]

[24]  $I$  or  $L$

Reference: [1.4.1.42]

$27^\circ$ , 250 kilometers (Answers may vary depending on printout.)

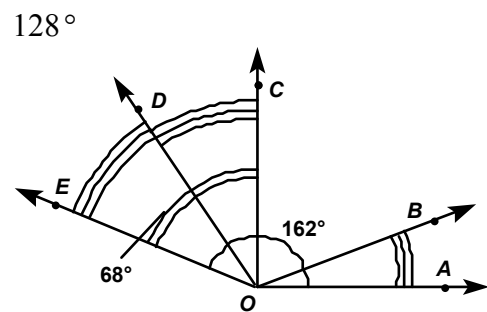
Reference: [1.4.1.43]

[26]  $21^\circ$

Reference: [1.4.1.45]

[27]  $m\angle FDE = 17^\circ$  and  $m\angle CDE = 49^\circ$

Reference: [1.4.1.48]



[28] \_\_\_\_\_

Reference: [1.4.2.49]

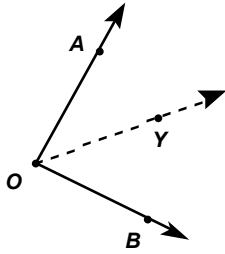
[29] acute

Reference: [1.4.2.50]

[30] acute

Reference: [1.4.2.52]

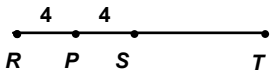
$\angle AOY$  and  $\angle YOY$  are adjacent angles.



[31] \_\_\_\_\_

Reference: [1.5.1.53]

12



[32] \_\_\_\_\_

Reference: [1.5.1.54]

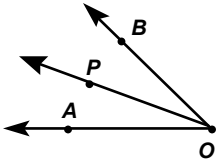
[33]  $2\sqrt{10}$

Reference: [1.5.1.56]

[34]  $(-5, 6)$

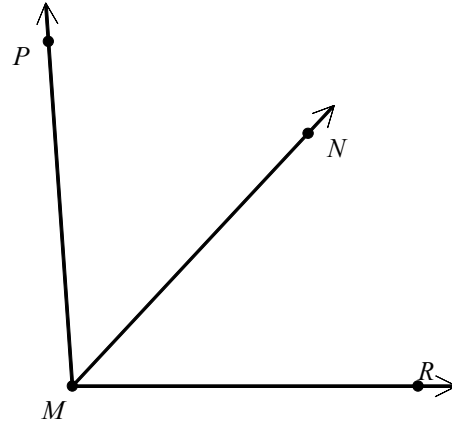
Reference: [1.5.2.58]

$m\angle AOB = 40^\circ$ ; bisector  $\overrightarrow{OP}$



[35] \_\_\_\_\_

Reference: [1.5.2.59]



[36]  $m\angle PMN = 47^\circ, m\angle NMR = 47^\circ$

Reference: [1.5.2.60]

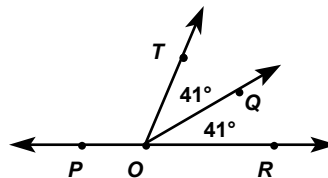
[37]  $m\angle XAB = 38^\circ$

Reference: [1.6.1.61]

[38] True

Reference: [1.6.1.64]

$m\angle TOP = 98^\circ$  Answers may vary.



[39] \_\_\_\_\_

Reference: [1.6.1.65]

[40] 5

Reference: [1.6.1.66]

[41] 4

Reference: [1.6.1.67]

[42]  $107^\circ$

Reference: [1.6.2.69]

[43]  $\angle BOC$



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Reference: [1.6.2.71]

Two angles are supplementary if the sum of  
[44] their measures is  $180^\circ$ .

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Reference: [1.6.2.72]

Two angles are complementary if the sum of  
[45] their measures is  $90^\circ$ .

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Reference: [1.6.2.73]

[46]  $113^\circ$

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Reference: [1.7.1.75]

perimeter = 590 ft  
[47] area =  $11250 \text{ ft}^2$

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Reference: [1.7.1.76]

[48]  $2289.06 \text{ cm}^2$

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Reference: [1.7.1.78a]

Area:  $361\pi$  square units, Circumference:  $38\pi$   
[49] units

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Reference: [1.7.1.80]

[50]  $55 \text{ ft}^2$

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Reference: [1.7.2.82]

[51] 84 ft; \$537.60

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Reference: [1.7.2.84]

[52] 7

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Reference: [1.7.2.86]

[53]  $216 \text{ ft}^2$

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Reference: [1.7.2.87]

[54]  $22.5 \text{ in.}^2$

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