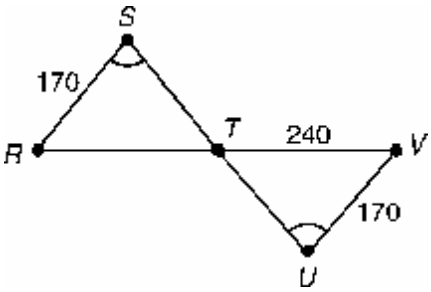
Name: _____ **Block:** _____ **Seat:** _____ **ID: A**

Honors Geometry Chapters 1-4

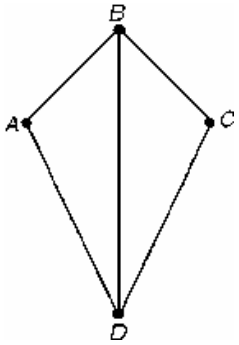
Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Which postulate or theorem can be used to determine the length of $\overline{RT}$?



a. ASA Congruence Postulate
b. AAS Congruence Theorem
c. SSS Congruence Postulate
d. SAS Congruence Postulate

____ 2. Given: $\overline{BD}$ bisects $\angle ABC$, $\overline{AB} \cong \overline{BC}$
Prove: $\overline{AD} \cong \overline{CD}$



Proof:

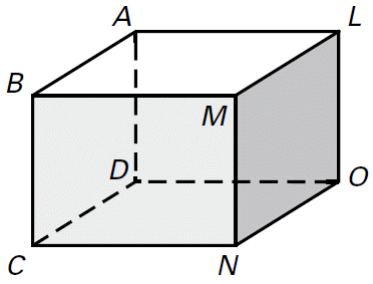
Statements	Reasons
1. $\overline{AB} \cong \overline{BC}$	1. Given
2. $\overline{BD} \cong \overline{BD}$	2. Reflexive Prop. of $\cong$
3. $\overline{BD}$ bisects $\angle ABC$	3. Given
4. ?	4. Def. of bisector
5. $\Delta ABD \cong \Delta CBD$	5. SAS Congruence Postulate
6. $\overline{AD} \cong \overline{CD}$	6. Corresponding Parts of Congruent Triangles are Congruent

The missing step in the proof is _____.

a. $\angle BAD \cong \angle BCD$
b. $\angle BDA \cong \angle BDC$
c. $\angle ABD \cong \angle CBD$
d. $\angle ABC \cong \angle CBA$

Short Answer

3.



Name the intersection of $\overleftrightarrow{AL}$ and $\overleftrightarrow{LO}$.

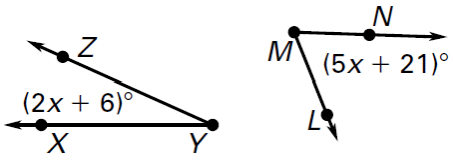
4. The midpoint of $\overline{FG}$ is $M(-1, 3)$. One endpoint is $F(-2, 5)$. Find the coordinates of endpoint G.

5. The endpoints of two segments are given. Find the exact length of each segment. Tell whether the segments are congruent.

   $\overline{WX}$; $W(1, 2), X(5, 1)$

   $\overline{YZ}$; $Y(4, 1), Z(2, 4)$

6. Given that $\angle XYZ$ and $\angle LMN$ are complementary angles, find $m\angle XYZ$ and $m\angle LMN$.



7. $\angle LMN$ and $\angle NMO$ form a linear pair. Find the measures of the angles if $m\angle LMN = (3x + 10)°$ and $m\angle NMO = (2x + 45)°$.

8. Draw a concave pentagon.

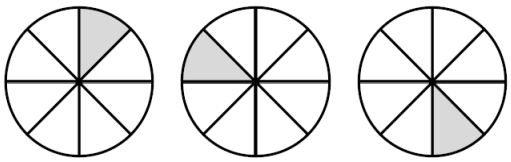
9. Tell whether the statement is *always, sometimes,* or *never* true.

   A hexagon is equiangular but not equilateral.

10. Tell whether the statement is *always, sometimes,* or *never* true.

    The complement of the supplement of an angle is an acute angle.

11. Sketch the fourth figure in the pattern below.



12. Write the if-then form of the statement "A poet is a writer."

13. Write the converse of the statement "A poet is a writer."

14. Write the inverse of the statement "A poet is a writer."

15. Write the contrapositive of the statement "A poet is a writer."

16. Rewrite the definition as a biconditional.

    In an equilateral polygon, all sides are congruent.

17. What conclusions can you make using the true statement?

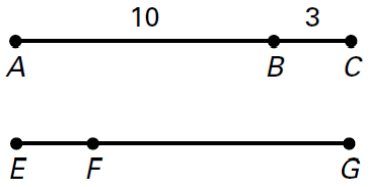
    The company will increase production if the demand for a product increases. Tony will work more hours if the company increases production.

18. Complete the proof.

GIVEN: $\overline{BC} \cong \overline{EF}$

$\overline{AC} \cong \overline{EG}$

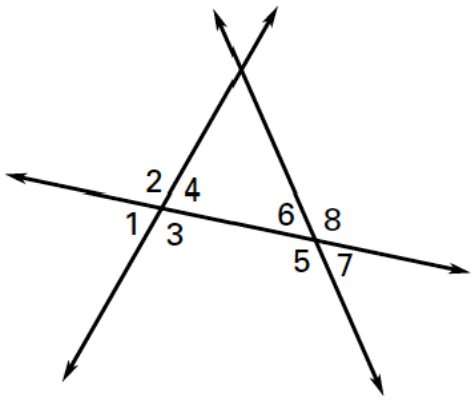
PROVE: $FG = 10$



Statements	Reasons
14. $AC = AB + BC$	_____
15. $AB = 10, BC = 3$	_____
16. _____	Substitution Property of Equality
17. _____	Simplify.
18. $\overline{AC} \cong \overline{EG}, \overline{BC} \cong \overline{EF}$	_____
19. $AC = EG, BC = EF$	_____
20. $EG = 13, EF = 3$	_____
21. _____	Segment Addition Postulate
22. $13 = 3 + FG$	_____
23. $FG = 10$	_____

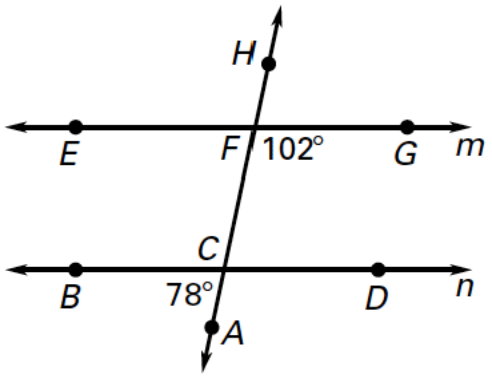
19. Identify the pairs of angles as *corresponding, alternate interior, alternate exterior, consecutive interior,* or *vertical* angles.

    $\angle 1$ and $\angle 4$



20. GIVEN: $m\angle BCA = 78^\circ$
$m\angle CFG = 102^\circ$

PROVE: $m \parallel n$



Statements	**Reasons**
1. $\angle FCD \cong \angle BCA$	
2. _____	Definition of Congruent Angles
3. $m\angle BCA = 78^\circ$	
4. $m\angle FCD = 78^\circ$	
5. _____	Given
6. $78^\circ + 102^\circ = 180^\circ$	
7. $m\angle FCD + m\angle CFG = 180^\circ$	
8. _____	Definition of Supplementary
9. $m \parallel n$	

What is the missing reason in row 3?

21. Write an equation of the line that passes through point P and is parallel to the line with the given equation.

$P\left(3, 3\right), y = -\frac{1}{2}x + 3$

22. Write an equation of the line that passes through point P and is parallel to the line with the given equation.

$P\left(-2, 1\right), y = \frac{1}{3}x - 1$

23. Write an equation of the line that passes through point P and is perpendicular to the line with the given equation.

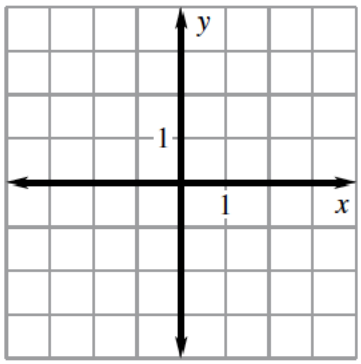
$P\left(6, 2\right), y = 3x + 3$

24. Write an equation of the line that passes through point P and is perpendicular to the line with the given equation.

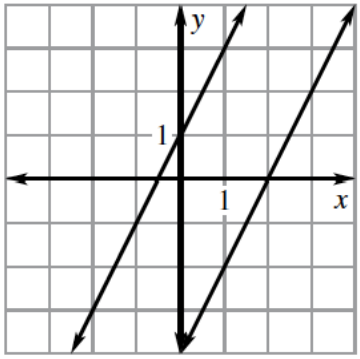
$P\left(-3, 0\right), y = 2x - 4$

25. Graph the equation.

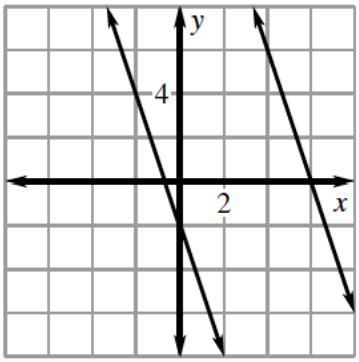
$-4x + 8y = 12$



26. Use the Distance Formula to find the exact distance between the two parallel lines.



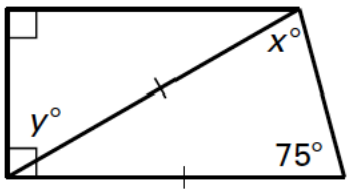
27. Use the Distance Formula to find the exact distance between the two parallel lines.



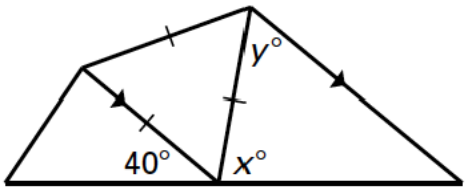
28. A triangle has the given vertices. Classify the triangle by its sides.

$A(1, 1), B(2, 4), C(3, 1)$

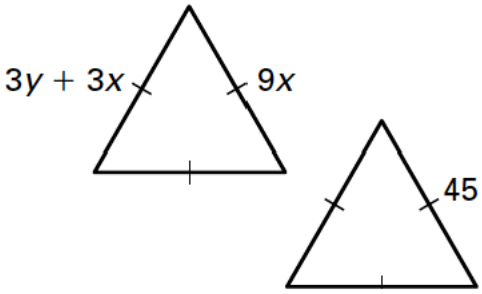
29. Find the values of x and y.



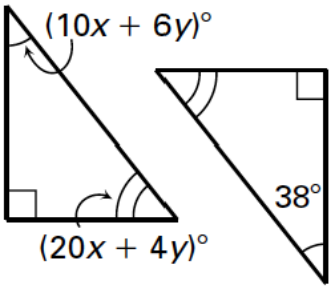
30. Find the values of x and y.



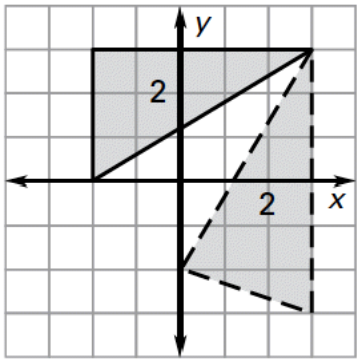
31. Find the values of x and y.



32. Find the values of x and y.

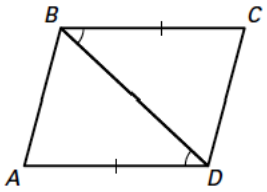


33. Tell whether a rigid motion can move the solid figure onto the dashed figure. If so, describe the transformation(s) that you can use. If not, explain why the figures are not congruent.



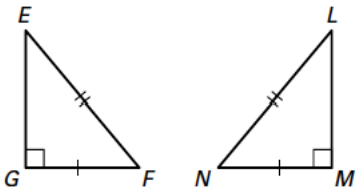
34. Is it possible to prove that the triangles are congruent? If so, state the postulate or theorem you would use.

$\triangle ABD \cong \triangle CDB$



35. Is it possible to prove that the triangles are congruent? If so, state the postulate or theorem you would use.

$\triangle EFG \cong \triangle LNM$

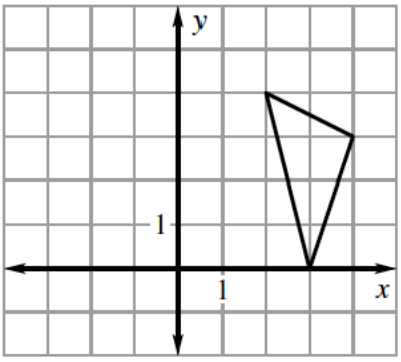


36. Is it possible to prove $\triangle ABC \cong \triangle DEF$ using the given information? If so, state the postulate or theorem that you would use.

$\overline{AB} \cong \overline{DE}$, $\overline{AC} \cong \overline{DF}$, $\overline{BC} \cong \overline{EF}$

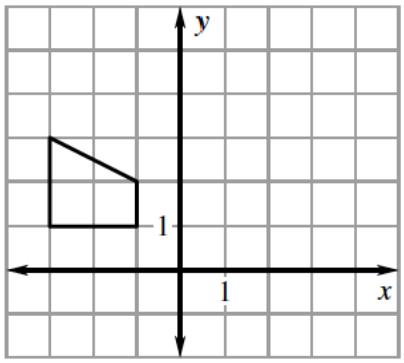
37. An image and the translation are given. Sketch the original figure.

$(x, y) \rightarrow (x+5, y-1)$

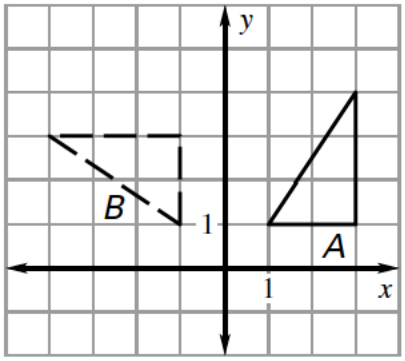


38. An image and the translation are given. Sketch the original figure.

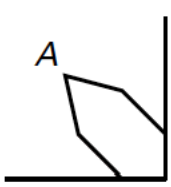
$(x, y) \rightarrow (x-5, y+2)$

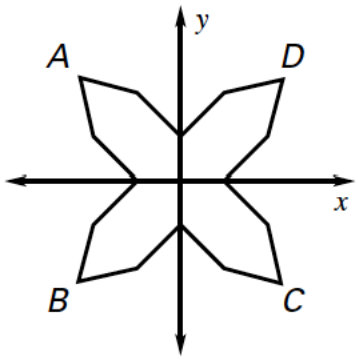


39. Is Figure A a rotation of Figure B? If so, give the angle and direction of rotation.

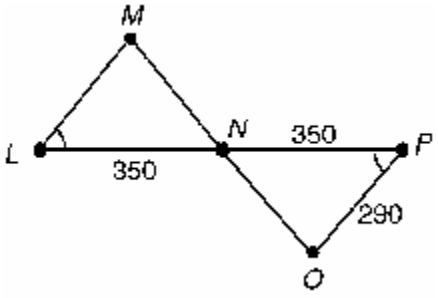


40. The stencil below on the left is used to create the design shown on the right. Describe how to reflect the stencil to move it from *A* to *C*.



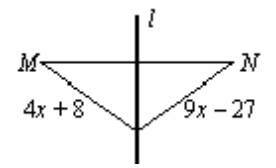


41. Find the length of $\overline{LM}$. State the postulate or theorem you use.

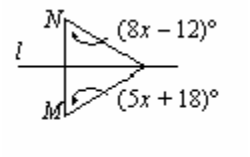


Line *l* is the perpendicular bisector of $\overline{MN}$.

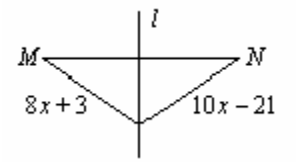
42. Find the value of x.



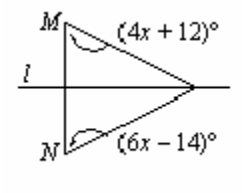
43. Find $m\angle M$.



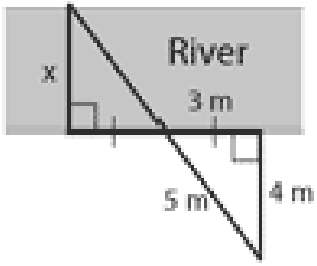
44. Find the value of x.



45. Find $m\angle M$.

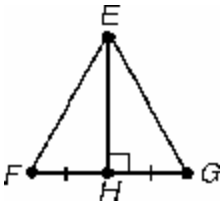


46. Use the measurements given in the diagram to find the distance x across the river.



Essay

47. Refer to the figure below.



a. Is there enough information to know whether $\angle FEG$ is acute, obtuse, or a right angle? Explain.
b. If $m\angle F$ is less than 45°, what type of angle is $\angle FEG$? Explain.

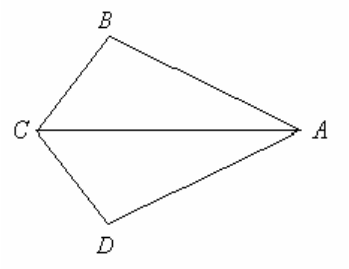
48. A diagonal of a polygon is a line segment that connects non-consecutive vertices of the polygon.
a. Draw square $ABCD$ and its diagonals. Are the diagonals congruent? Explain.
b. Draw a regular pentagon $ABCDE$ and two diagonals from vertex A. Are these 2 diagonals congruent? Explain.
c. How many diagonals does a regular pentagon have? Are all of the diagonals congruent? Justify your reasoning.

Other

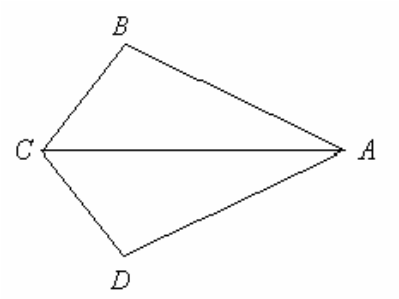
49. Using a straightedge and compass, construct the bisector of an angle. Label all the important points of the original and the construction. Then, using the triangle congruence postulates and corresponding parts of congruent triangles, write a paragraph proof to verify that the construction for the bisector of an angle is valid.

50. Using a straightedge and compass, construct a copy of an obtuse angle. Label all the important points of the original and the construction. Then, using the triangle congruence postulates and corresponding parts of congruent triangles, write a paragraph proof showing that the constructed angle is congruent to the original angle.

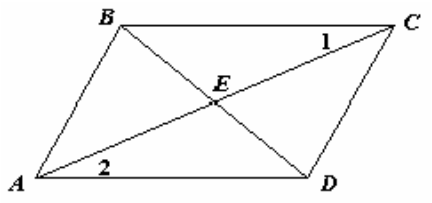
51. Given: $\angle BAC \cong \angle DAC,\ \angle DCA \cong \angle BCA$
Prove: $\overline{BC} \cong \overline{DC}$



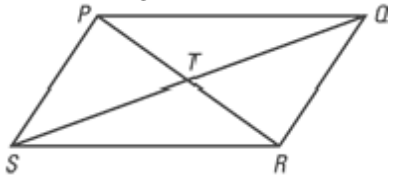
52. Given: $\angle BAC \cong \angle DAC,\ \angle B \cong \angle D$
Prove: $\overline{BC} \cong \overline{DC}$



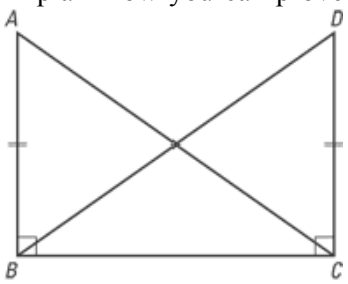
53. Given: $\overline{BC} \cong \overline{DA}, \angle 1 \cong \angle 2$
Prove: $\Delta BEA \cong \Delta DEC$



54. Given: $\overline{PR}$ and $\overline{QS}$ bisect each other
Prove: $\Delta PQR \cong \Delta RSP$



55. Explain how you can prove that the hypotenuses of the right triangles ΔABC and ΔDCB are congruent.



Honors Geometry Chapters 1-4
Answer Section

MULTIPLE CHOICE

1. ANS: B PTS: 1 DIF: Level B REF: HLGM0316
   NAT: NT.CCSS.MTH.10.9-12.G.SRT.5 TOP: Lesson 4.7 Use Congruent Triangles
   KEY: triangle | length | segment | AAS MSC: DOK 1 NOT: 978-0-547-31534-8
2. ANS: C PTS: 1 DIF: Level A REF: MLGE0235
   NAT: NT.CCSS.MTH.10.9-12.G.SRT.5
   LOC: NCTM.PSSM.00.MTH.9-12.GEO.1.c | NCTM.PSSM.00.MTH.9-12.REA.3 | NCTM.PSSM.00.MTH.9-12.REA.4 TOP: Lesson 4.7 Use Congruent Triangles
   KEY: congruent | proof | bisector MSC: DOK 2 NOT: 978-0-547-31534-8

SHORT ANSWER

3. ANS:
   Point L

   PTS: 1 DIF: Level C NAT: NT.CCSS.MTH.10.9-12.G.CO.1
   TOP: Chapter 1 Test, Form C MSC: DOK 1
4. ANS:
   $(0, 1)$

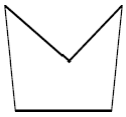
   PTS: 1 DIF: Level C TOP: Chapter 1 Test, Form C
   MSC: DOK 2
5. ANS:
   $WX = \sqrt{17}$; $YZ = \sqrt{13}$; $\overline{WX} \ncong \overline{YZ}$

   PTS: 1 DIF: Level C
   NAT: NT.CCSS.MTH.10.9-12.G.CO.9 | NT.CCSS.MTH.10.9-12.G.GPE.7
   TOP: Chapter 1 Test, Form C MSC: DOK 2
6. ANS:
   $m\angle XYZ = 24°$; $m\angle LMN = 66°$

   PTS: 1 DIF: Level C TOP: Chapter 1 Test, Form C
   MSC: DOK 2
7. ANS:
   $m\angle LMN = 85°$; $m\angle NMO = 95°$

   PTS: 1 DIF: Level C TOP: Chapter 1 Test, Form C
   MSC: DOK 2

8. ANS:
Sample answer:



PTS: 1 DIF: Level C TOP: Chapter 1 Test, Form C
MSC: DOK 1

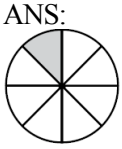
9. ANS:
sometimes

PTS: 1 DIF: Level C TOP: Chapter 1 Test, Form C
MSC: DOK 1

10. ANS:
always

PTS: 1 DIF: Level C NAT: NT.CCSS.MTH.10.9-12.G.CO.1
TOP: Chapter 1 Test, Form C MSC: DOK 1

11. ANS:



PTS: 1 DIF: Level C TOP: Chapter 2 Test, Form C
MSC: DOK 2

12. ANS:
If a person is a poet, then he is a writer.

PTS: 1 DIF: Level C TOP: Chapter 2 Test, Form C
MSC: DOK 1

13. ANS:
If a person is a poet, then he is a writer.

PTS: 1 DIF: Level C TOP: Chapter 2 Test, Form C
MSC: DOK 2

14. ANS:
If a person is not a poet, then he is not a writer.

PTS: 1 DIF: Level C TOP: Chapter 2 Test, Form C
MSC: DOK 2

15. ANS:
If a person is not a writer, then he is not a poet.

PTS: 1 DIF: Level C TOP: Chapter 2 Test, Form C
MSC: DOK 2

16. ANS:
A polygon is equilateral if and only if all of its sides are congruent.

PTS: 1 DIF: Level C TOP: Chapter 2 Test, Form C
MSC: DOK 2

17. ANS:
Tony will work more hours if the demand for a product increases.

PTS: 1 DIF: Level C TOP: Chapter 2 Test, Form C
MSC: DOK 2

18. ANS:
14. Segment Addition Postulate
15. Given
16. $AC = 10 + 3$
17. $AC = 13$
18. Given
19. Definition of Congruent Segments
20. Substitution Property of Equality
21. $EG = EF + FG$
22. Substitution Property of Equality
23. Subtraction Property of Equality

PTS: 1 DIF: Level C NAT: NT.CCSS.MTH.10.9-12.G.CO.9
TOP: Chapter 2 Test, Form C MSC: DOK 4

19. ANS:
vertical

PTS: 1 DIF: Level C NAT: NT.CCSS.MTH.10.9-12.G.CO.9
TOP: Chapter 3 Test, Form C MSC: DOK 1

20. ANS:
Given

PTS: 1 DIF: Level C NAT: NT.CCSS.MTH.10.9-12.G.CO.9
TOP: Chapter 3 Test, Form C MSC: DOK 2

21. ANS:
$y = -\frac{1}{2}x + 4\frac{1}{2}$

PTS: 1 DIF: Level C
NAT: NT.CCSS.MTH.10.9-12.G.GPE.5 | NT.CCSS.MTH.10.9-12.A.CED.2
TOP: Chapter 3 Test, Form C MSC: DOK 2

22. ANS:
$y = \frac{1}{3}x + 1\frac{2}{3}$

PTS: 1 DIF: Level C
NAT: NT.CCSS.MTH.10.9-12.G.GPE.5 | NT.CCSS.MTH.10.9-12.A.CED.2
TOP: Chapter 3 Test, Form C MSC: DOK 2

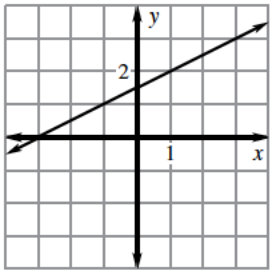
23. ANS:
$y = -\frac{1}{3}x + 4$

PTS: 1 DIF: Level C
NAT: NT.CCSS.MTH.10.9-12.G.GPE.5 | NT.CCSS.MTH.10.9-12.A.CED.2
TOP: Chapter 3 Test, Form C MSC: DOK 2

24. ANS:
$y = -\frac{1}{2}x - 1\frac{1}{2}$

PTS: 1 DIF: Level C
NAT: NT.CCSS.MTH.10.9-12.G.GPE.5 | NT.CCSS.MTH.10.9-12.A.CED.2
TOP: Chapter 3 Test, Form C MSC: DOK 2

25. ANS:



PTS: 1 DIF: Level C
NAT: NT.CCSS.MTH.10.9-12.A.CED.2 | NT.CCSS.MTH.10.9-12.F.IF.7.a
TOP: Chapter 3 Test, Form C MSC: DOK 2

26. ANS:
$\sqrt{5}$

PTS: 1 DIF: Level C NAT: NT.CCSS.MTH.10.9-12.G.GPE.7
TOP: Chapter 3 Test, Form C MSC: DOK 2

27. ANS:
$2\sqrt{10}$

PTS: 1 DIF: Level C NAT: NT.CCSS.MTH.10.9-12.G.GPE.7
TOP: Chapter 3 Test, Form C MSC: DOK 2

28. ANS:
isosceles

PTS: 1 DIF: Level C TOP: Chapter 4 Test, Form C
MSC: DOK 2

29. ANS:
$x = 75, y = 60$

PTS: 1 DIF: Level C TOP: Chapter 4 Test, Form C
MSC: DOK 2

30. ANS:
$x = 80, y = 60$

PTS: 1 DIF: Level C TOP: Chapter 4 Test, Form C
MSC: DOK 2

31. ANS:
$x = 5, y = 10$

PTS: 1 DIF: Level C TOP: Chapter 4 Test, Form C
MSC: DOK 2

32. ANS:
$x = 2, y = 3$

PTS: 1 DIF: Level C TOP: Chapter 4 Test, Form C
MSC: DOK 2

33. ANS:
No; a rotation does not map one figure onto the other, because corresponding sides are not congruent.

PTS: 1 DIF: Level C
NAT: NT.CCSS.MTH.10.9-12.G.CO.6 | NT.CCSS.MTH.10.9-12.G.CO.7
TOP: Chapter 4 Test, Form C MSC: DOK 2

34. ANS:
yes; SAS

PTS: 1 DIF: Level C NAT: NT.CCSS.MTH.10.9-12.G.CO.10
TOP: Chapter 4 Test, Form C MSC: DOK 2

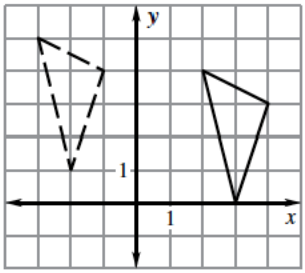
35. ANS:
yes; HL

PTS: 1 DIF: Level C NAT: NT.CCSS.MTH.10.9-12.G.CO.10
TOP: Chapter 4 Test, Form C MSC: DOK 2

36. ANS:
yes; SSS

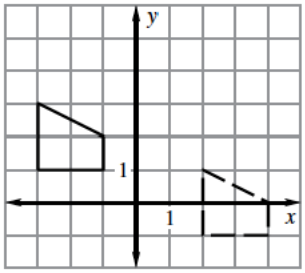
PTS: 1 DIF: Level C NAT: NT.CCSS.MTH.10.9-12.G.CO.10
TOP: Chapter 4 Test, Form C MSC: DOK 2

37. ANS:



PTS: 1 DIF: Level C NAT: NT.CCSS.MTH.10.9-12.G.CO.2
TOP: Chapter 4 Test, Form C MSC: DOK 2

38. ANS:



PTS: 1 DIF: Level C NAT: NT.CCSS.MTH.10.9-12.G.CO.2
TOP: Chapter 4 Test, Form C MSC: DOK 2

39. ANS:
yes; 90° clockwise

PTS: 1 DIF: Level C NAT: NT.CCSS.MTH.10.9-12.G.CO.6
TOP: Chapter 4 Test, Form C MSC: DOK 2

40. ANS:
reflect in the x-axis, then reflect in the y-axis or reflect in the y-axis, then reflect in the x-axis

PTS: 1 DIF: Level C NAT: NT.CCSS.MTH.10.9-12.G.CO.6
TOP: Chapter 4 Test, Form C MSC: DOK 2

41. ANS:
$LM = 290$; ASA Congruence Postulate

PTS: 1 DIF: Level A REF: HLGM0327 NAT: NT.CCSS.MTH.10.9-12.G.SRT.5
TOP: Lesson 4.7 Use Congruent Triangles KEY: triangle | congruent | ASA
MSC: DOK 1 NOT: 978-0-547-31534-8

42. ANS:
7

PTS: 1 DIF: Level B REF: BS022250
TOP: Lesson 4.7 Use Congruent Triangles
KEY: linear | equation | triangle | perpendicular bisector MSC: DOK 2
NOT: 978-0-547-31534-8

43. ANS:
68°

PTS: 1 DIF: Level B REF: BS022251
TOP: Lesson 4.7 Use Congruent Triangles
KEY: solve | linear | equation | angle | triangle | perpendicular bisector
MSC: DOK 2 NOT: 978-0-547-31534-8

44. ANS:
12

PTS: 1 DIF: Level B REF: BS022252
TOP: Lesson 4.7 Use Congruent Triangles
KEY: solve | linear | equation | triangle | perpendicular bisector
MSC: DOK 2 NOT: 978-0-547-31534-8

45. ANS:
64°

PTS: 1 DIF: Level B REF: BS022253
TOP: Lesson 4.7 Use Congruent Triangles
KEY: solve | linear | equation | triangle | angle measure | perpendicular bisector
MSC: DOK 2 NOT: 978-0-547-31534-8

46. ANS:
4 m

PTS: 1 DIF: Level B REF: 7f54d2b9-cdbb-11db-b502-0011258082f7
TOP: Lesson 4.7 Use Congruent Triangles
KEY: Congruent triangles | indirect measure MSC: DOK 2
NOT: 978-0-547-31534-8

ESSAY

47. ANS:
a. No. There is no information about the measures of angles F and G.
b. Obtuse. If $\angle F$ is less than 45°, $\angle FEH$ is greater than 45°. Since the 2 triangles are congruent by SAS, $\angle GEH$ is greater than 45°. Therefore, $\angle FEG$ is greater than 90°, which means it is obtuse.

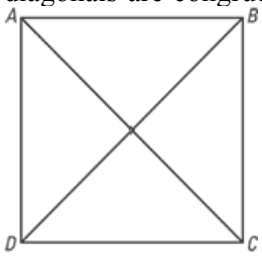
PTS: 1 DIF: Level B REF: MLGE0125
LOC: NCTM.PSSM.00.MTH.9-12.GEO.1.a
TOP: Lesson 4.7 Use Congruent Triangles
KEY: obtuse | triangle | information | congruent | SAS MSC: DOK 3
NOT: 978-0-547-31534-8

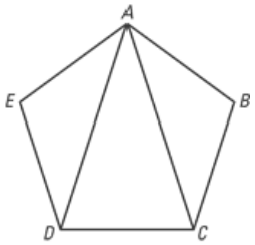
48. ANS:

a. Yes. Since a square has 4 right angles, $\angle DAB \cong \angle ABC$. Since a square has 4 equal sides, $\overline{DA} \cong \overline{AB}$ and $\overline{AB} \cong \overline{BC}$. $\Delta DAB \cong \Delta ABC$ by the SAS Congruence Postulate. Therefore, $\overline{AC} \cong \overline{BD}$ because corresponding parts of $\cong \Delta s$ are $\cong$ See diagram below.

b. Yes. Since $ABCDE$ is a regular pentagon, $\overline{AB} \cong \overline{AE}$, $\overline{BC} \cong \overline{ED}$, and $\angle B \cong \angle E$. $\Delta ABC \cong \Delta AED$ by the SAS Congruence Postulate. Therefore, $\overline{AC} \cong \overline{AD}$ because corresponding parts of $\cong \Delta s$ are $\cong$ See diagram below.

c. 5, yes. You can use the SAS Congruence Postulate to show that any two triangles that have a diagonal as a side are congruent. You can then use corresponding parts of Δs are congruent to show that all of the diagonals are congruent.





PTS: 1 DIF: Level C REF: GEO.04.06.ER.09
NAT: NT.CCSS.MTH.10.9-12.G.SRT.5 LOC: NCTM.PSSM.00.MTH.9-12.GEO.1.a
TOP: Lesson 4.7 Use Congruent Triangles
KEY: Extended Response | Diagonal | Polygon | Congruent | CPCTC
MSC: DOK 3 NOT: 978-0-547-31534-8

OTHER

49. ANS:

Students' proofs should use the SSS Congruence Postulate to show that the two triangles are congruent. The corresponding sides along the sides of the original triangle and the corresponding sides extending out to the point on the angle bisector are congruent because both sides in the pairs were created by the same arc. The third sides of the triangles are shared between them, and so are congruent to each other by the reflexive property. After the triangles are proven congruent by SSS, students should use corresponding parts of congruent triangles to prove that the corresponding angles are congruent.Therefore, the angle is bisected.

PTS: 1 DIF: Level C REF: MLGE0002 NAT: NT.CCSS.MTH.10.9-12.G.CO.12
LOC: NCTM.PSSM.00.MTH.9-12.GEO.1.c | NCTM.PSSM.00.MTH.9-12.REA.3 | NCTM.PSSM.00.MTH.9-12.REA.4 TOP: Lesson 4.7 Use Congruent Triangles
KEY: triangle | construction | congruent | proof | paragraph | CPCTC
MSC: DOK 4 NOT: 978-0-547-31534-8

50. ANS:
Students' proofs should explain how all three segments of the construction are copied and are therefore congruent to the segments in the original angle. They should then use the SSS Congruence Postulate to show that the two triangles are congruent. Next, they should use corresponding parts of congruent triangles to prove that the corresponding angles are congruent.

PTS: 1 DIF: Level C REF: MLGE0002B
NAT: NT.CCSS.MTH.10.9-12.G.CO.12 TOP: Lesson 4.7 Use Congruent Triangles
KEY: triangle | construction | congruent | proof | paragraph | CPCTC
MSC: DOK 4 NOT: 978-0-547-31534-8

51. ANS:

Statements	Reasons
1. $\angle BAC \cong \angle DAC,\ \angle DCA \cong \angle BCA$	1. Given
2. $\overline{AC} \cong \overline{AC}$	2. Reflexive properpty of congruence
3. $\Delta ABC \cong \Delta ADC$	3. ASA Congruence Postulate
4. $\overline{BC} \cong \overline{DC}$	4. Corresponding parts of congruent Δs are congruent

PTS: 1 DIF: Level B REF: MLGM0017
NAT: NT.CCSS.MTH.10.9-12.G.SRT.5
LOC: NCTM.PSSM.00.MTH.9-12.GEO.1.c | NCTM.PSSM.00.MTH.9-12.REA.3 | NCTM.PSSM.00.MTH.9-12.REA.4 TOP: Lesson 4.7 Use Congruent Triangles
KEY: triangles | congruence MSC: DOK 4 NOT: 978-0-547-31534-8

52. ANS:

Statements	Reasons
1. $\angle BAC \cong \angle DAC,\ \angle B \cong \angle D$	1. Given
2. $\overline{AC} \cong \overline{AC}$	2. Reflexive Property
3. $\Delta ABC \cong \Delta ADC$	3. AAS Congruence Theorem
4. $\overline{BC} \cong \overline{DC}$	4. Corresponding Parts of Congruent Triangles are Congruent

PTS: 1 DIF: Level B REF: MLGE0237 NAT: NT.CCSS.MTH.10.9-12.G.SRT.5
LOC: NCTM.PSSM.00.MTH.9-12.GEO.1.c | NCTM.PSSM.00.MTH.9-12.REA.3 | NCTM.PSSM.00.MTH.9-12.REA.4 TOP: Lesson 4.7 Use Congruent Triangles
KEY: triangle | congruence | AAS | CPCTC MSC: DOK 4
NOT: 978-0-547-31534-8

53. ANS:
$\angle BEC \cong \angle DEA$ by vertical angles. $\Delta BEC \cong \Delta DEA$ by AAS. Then, because corresponding parts of congruent triangles are congruent, $\overline{BE} \cong \overline{DE}$, and $\overline{AE} \cong \overline{CE}$. $\angle BEA \cong \angle DEC$ by vertical angles, so $\Delta BEA \cong \Delta DEC$ by SAS.

PTS: 1 DIF: Level C REF: MLGE0239 NAT: NT.CCSS.MTH.10.9-12.G.SRT.5
LOC: NCTM.PSSM.00.MTH.9-12.GEO.1.c | NCTM.PSSM.00.MTH.9-12.REA.3 | NCTM.PSSM.00.MTH.9-12.REA.4 TOP: Lesson 4.7 Use Congruent Triangles
KEY: triangle | proof | CPCTC MSC: DOK 4 NOT: 978-0-547-31534-8

54. ANS:

Statements	Reasons
$\overline{PR}$ and $\overline{QS}$ bisect each other	Given
T is the midpoint of $\overline{PR}$ and $\overline{QS}$	Definition of segment bisector
$\overline{PT} \cong \overline{RT}$ and $\overline{QT} \cong \overline{ST}$	Definition of midpoint
$\angle PTQ \cong \angle RTS$ and $\angle PTS \cong \angle RTQ$	Vertical angles congruence theorem
$\Delta PTQ \cong \Delta RTS$ and $\Delta PTS \cong \Delta RTQ$	SAS Congruence Postulate
$\overline{PQ} \cong \overline{RS}$ and $\overline{QR} \cong \overline{SP}$	Corresponding parts of $\cong \Delta$s are $\cong$.
$\overline{PR} \cong \overline{RP}$	Reflexive Property of congruence
$\Delta PQR \cong \Delta RSP$	SSS Congruence Postulate

PTS: 1 DIF: Level C REF: GEO.04.06.PF.08
NAT: NT.CCSS.MTH.10.9-12.G.SRT.5
LOC: NCTM.PSSM.00.MTH.9-12.ALG.2.b | NCTM.PSSM.00.MTH.9-12.GEO.1.a | NCTM.PSSM.00.MTH.9-12.GEO.1.b | NCTM.PSSM.00.MTH.9-12.GEO.1.c | NCTM.PSSM.00.MTH.9-12.REA.3 | NCTM.PSSM.00.MTH.9-12.REA.4
TOP: Lesson 4.7 Use Congruent Triangles
KEY: Proof | CPCTC | Congruent | Triangle | Quadrilateral | Diagonal
MSC: DOK 4 NOT: 978-0-547-31534-8

55. ANS:
You can use the SAS Congruence Postulate to prove that $\Delta ABC \cong \Delta DCB$. Since corresponding parts of congruent triangles are congruent, $\overline{AC} \cong \overline{DB}$.

PTS: 1 DIF: Level A REF: GEO.04.06.SR.07
NAT: NT.CCSS.MTH.10.9-12.G.SRT.5
LOC: NCTM.PSSM.00.MTH.9-12.GEO.1.b | NCTM.PSSM.00.MTH.9-12.GEO.1.c | NCTM.PSSM.00.MTH.9-12.REA.3 | NCTM.PSSM.00.MTH.9-12.REA.4
TOP: Lesson 4.7 Use Congruent Triangles
KEY: Short Response | Right | Triangle | Congruent | SAS MSC: DOK 3
NOT: 978-0-547-31534-8