Name: Key Class: _____ Date: _____ ID: A

32

Geometry and Advanced Geometry Chapter 1 Test

Short Answer

1 pt 1. The midpoint of $\overline{JK}$ is $M(-2,-2)$. One endpoint is $J(4,3)$. Find the coordinates of the other endpoint.

$x_m = \frac{x_1+x_2}{2}$

$2 \cdot -2 = \frac{4+x_2}{2} \cdot 2$

$-4 = 4 + x_2$

$-4 \quad -4$

$x_2 = -8$

$y_m = \frac{y_1+y_2}{2}$

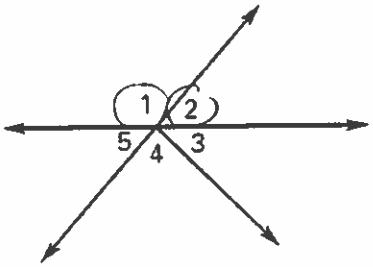
$2 \cdot -2 = \frac{3+y_2}{2} \cdot 2$

$-4 = 3 + y_2$

$-7 = y_2$

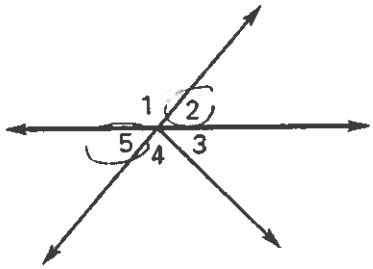
$(-8, -7)$

1 pt 2. Tell whether $\angle 1$ and $\angle 2$ are *vertical angles*, a *linear pair*, or *neither*.



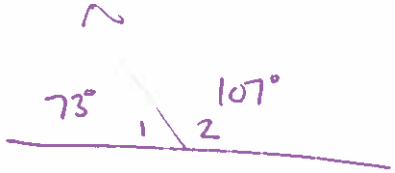
linear pair.

1 pt 3. Tell whether $\angle 2$ and $\angle 5$ are *vertical angles*, a *linear pair*, or *neither*.



vertical angles.

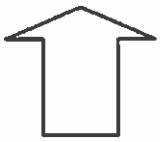
1 pt 4. $\angle 1$ and $\angle 2$ form a linear pair. $m\angle 1 = 73°$. Find $m\angle 2$.



180
- 73
107°

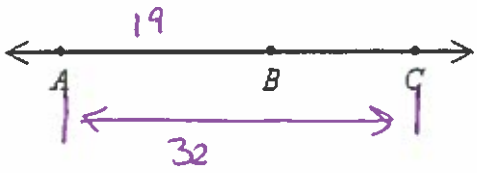
Name: _____ ID: A

1 pt 5. Classify the polygon by the number of sides. Is it convex or concave?



heptagon , concave
+ ½ + ½

1 pt 6. If $AB = 19$ and $AC = 32$, find the length of $\overline{BC}$.



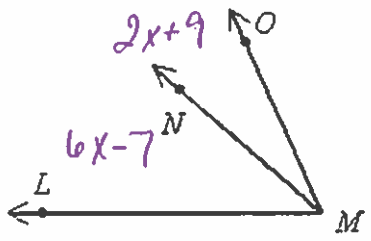
32
- 19
13

1 pt 7. Find the coordinates of the midpoint of the segment with the endpoints $A(-1, 4)$ and $B(3, 6)$.

$\frac{-1+3}{2}$, $\frac{4+6}{2}$

(1, 5)

1 pt 8. $m\angle OMN = (2x + 9)°$ and $m\angle LMN = (6x - 7)°$ and $m\angle OML = 66°$.
Find $m\angle OMN$ and $m\angle LMN$.



$2x + 9 + 6x - 7 = 66$

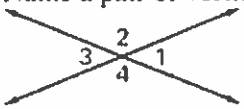
$8x + 2 = 66$
$-2 \quad -2$
$8x = 64$
$x = 8$

$\angle LMN = 6(8) - 7 = 41°$

$\angle OMN = 2(8) + 9 = 25°$

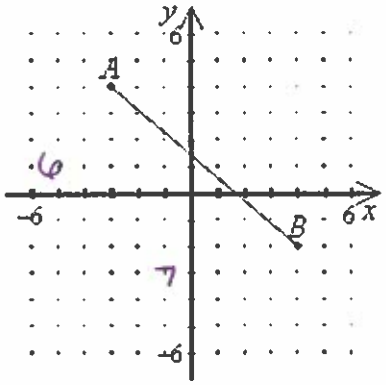
Name: _____ ID: A

9. Name a pair of vertical angles in the figure.



∠1 ∠3 or ∠2 ∠4

10. The distance between points A and B is _____.

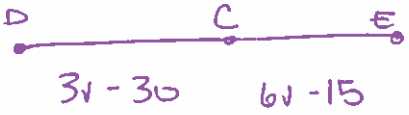


$= \sqrt{6^2 + 7^2}$

$\sqrt{85} = 9.2$ units

11. Let C be between D and E. Use the Segment Addition Postulate to solve for v.

$DC = 3v - 30$
$CE = 6v - 15$
$DE = 27$



$27 = 3v - 30 + 6v - 15$

$27 = 9v - 45$

$+45 \quad +45$

$72 = 9v$

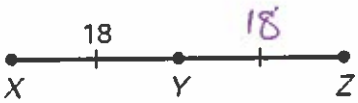
$v = 8$

Name: _____ ID: A

12. Find the length of *LN*.

25
+12
37

13. Find the length of *YZ*.



18

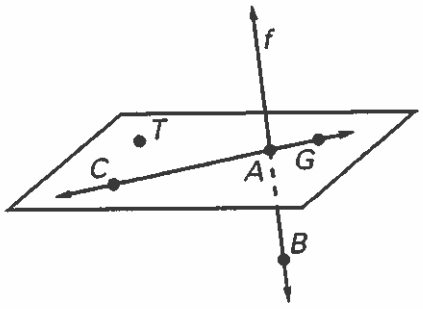
14. Find the exact distance between the points.
$A(2, 3)$ and $B(4, 9)$

$\sqrt{(4-2)^2 + (9-3)^2}$

$\sqrt{2^2 + 6^2}$

$\sqrt{4+36}$ $= \sqrt{40} = 6.3$

15. Give two other names for $\overleftrightarrow{AB}$.



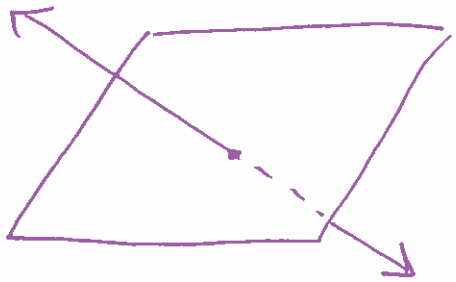
$\overleftrightarrow{BA}$

line f

Name: _____ ID: A

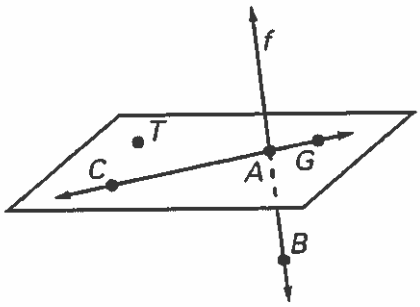
16. Sketch the intersection of a line and a plane.

1 pt



17. Name three points that are collinear.

1 pt



C, A, G

18. Define complementary angles. angles whose measures add to 180 90°

1 pt

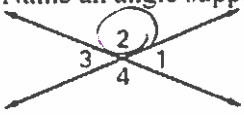
19. $\angle 1$ and $\angle 2$ are complementary angles. Given $m\angle 1 = 87°$, find $m\angle 2$.

1 pt

$$\begin{array}{r} 90 \\ -\,87 \\ \hline 3 \end{array}$$

3°

20. Name an angle supplementary to $\angle 2$ in the figure.



$\angle 1$ or $\angle 3$

1 pt

21. $\angle 1$ and $\angle 2$ are supplementary angles. Given $m\angle 1 = 8°$, find $m\angle 2$.

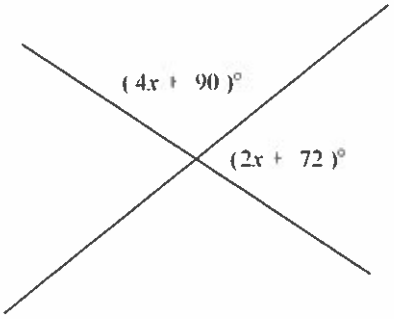
1 pt

$$\begin{array}{r} 180 \\ -\,8 \\ \hline 172° \end{array}$$

Name: _____ ID: A

22. Solve for x:

1 pt



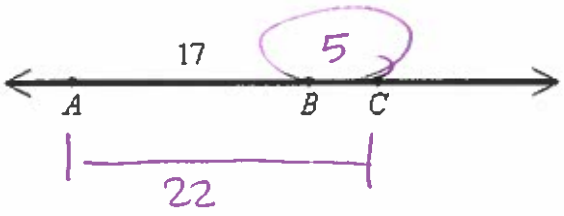
$4x+90+2x+72=180$

$6x+162=180$

$6x=18$

$x=3$

1 pt 23. If $AB = 17$ and $AC = 22$, find BC.



1 pt 24. The expressions $5x-4$ and $3x$ represent two side lengths (in meters) of a regular octagon. Find the length of a side of the octagon.

$5x-4=3x$

$-3x \quad +4 \quad +4$

$2x = 4$

$x=2$

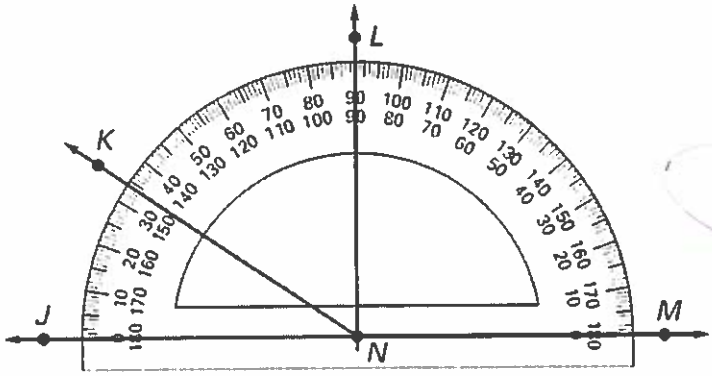
$5(2)-4$

$10-4=$ 6 meters

Name: _____ ID: A

25. Use the diagram to find the measure of $\angle JNK$. Then classify the angle.

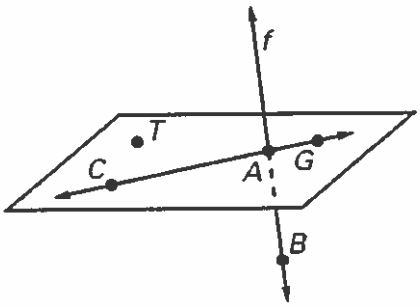
2 pts



34°

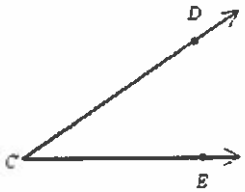
acute

1 pt 26. Name a point not coplanar with A, C, and T.



B

1 pt 27. Name this angle in three different ways.



∠DCE

∠ECD

∠C

Name: _____ ID: A

+1

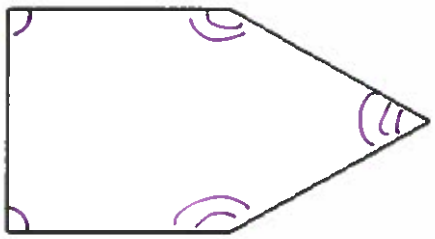
28. (BONUS) The positions of two airplanes approaching an airport are plotted in a coordinate plane with the airport located at $(0, 0)$. The locations of the planes are given by the coordinates $(-3, 3)$ and $(-5, 5)$. Each grid square is 1 mile wide. How far apart are the approaching airplanes? Round your answer to the nearest tenth of a mile.

$\sqrt{(-5 - -3)^2 + (5-3)}$ / $\sqrt{(-2)^2 + 2^2}$ $\sqrt{8}$ 2.8 miles

Other

1 pt

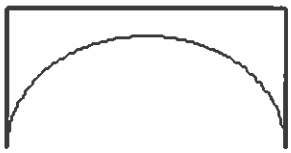
29. Determine if the figure below is a regular polygon. If it is not a regular polygon, explain why.



- the angles are not equal / congruent

1 pt

30. Determine if the figure below is a polygon. If it is not a polygon, explain why.



- not a polygon BC all segments are not straight
- all sides are not segments

Completion

Complete each statement.

1 pt

31. Complete the statement. A regular polygon is both _____ and equiangular.

equilateral

Geometry and Advanced Geometry Chapter 1 Test
Answer Section

SHORT ANSWER

1. ANS:
(–8, –7)

PTS: 1 DIF: Level B REF: MLGE0086
LOC: NCTM.PSSM.00.MTH.9-12.GEO.2.a
TOP: Lesson 1.3 Use Midpoint and Distance Formulas KEY: midpoint formula
MSC: DOK 3 NOT: 978-0-547-31534-8

2. ANS:
linear pair

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

3. ANS:
vertical angles

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

4. ANS:
107°

PTS: 1 DIF: Level B REF: MGEH0011
TOP: Lesson 1.5 Describe Angle Pair Relationships KEY: supplementary | linear pair
MSC: DOK 1 NOT: 978-0-547-31534-8

5. ANS:
concave

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

6. ANS:
13

PTS: 1 DIF: Level B REF: PHGM0108
TOP: Lesson 1.2 Use Segments and Congruence
KEY: segment length | segment addition postulate MSC: DOK 2
NOT: 978-0-547-31534-8

7. ANS:
$(1, 5)$

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

8. ANS:
$m\angle OMN = 25°$ and $m\angle LMN = 41°$

PTS: 1 DIF: Level C REF: MLGE0191 NAT: NT.CCSS.MTH.10.9-12.G.CO.1
LOC: NCTM.PSSM.00.MTH.9-12.PRS.3 | NCTM.PSSM.00.MTH.9-12.REP.2
TOP: Lesson 1.4 Measure and Classify Angles
KEY: angle addition postulate | angle measure MSC: DOK 3
NOT: 978-0-547-31534-8

9. ANS:
$\angle 1$ and $\angle 3$ or $\angle 2$ and $\angle 4$

PTS: 1 DIF: Level A REF: MIM10111 NAT: NT.CCSS.MTH.10.9-12.G.CO.1
TOP: Lesson 1.5 Describe Angle Pair Relationships KEY: vertical angles
MSC: DOK 1 NOT: 978-0-547-31534-8

10. ANS:
$\sqrt{85}$

PTS: 1 DIF: Level B REF: MLGE0188
TOP: Lesson 1.3 Use Midpoint and Distance Formulas
KEY: distance formula | coordinate geometry MSC: DOK 2
NOT: 978-0-547-31534-8

11. ANS:
$v = 8$

PTS: 1 DIF: Level B REF: MHGM0013
TOP: Lesson 1.2 Use Segments and Congruence
KEY: solve | variable | segment addition postulate MSC: DOK 2
NOT: 978-0-547-31534-8

12. ANS:
37

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

13. ANS:
18

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

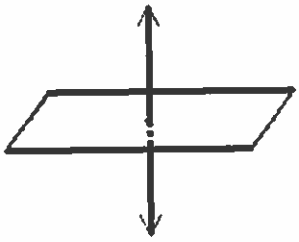
14. ANS:
$\sqrt{40}$

PTS: 1 DIF: Level A
NAT: NT.CCSS.MTH.10.9-12.G.CO.9 | NT.CCSS.MTH.10.9-12.G.GPE.7
TOP: Chapter 1 Test, Form A MSC: DOK 2

15. ANS:
$\overleftrightarrow{BA}, f$

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

16. ANS:
Sketches vary.



PTS: 1 DIF: Level A REF: MLGE0184
TOP: Lesson 1.1 Identify Points, Lines, and Planes KEY: draw | plane | intersects | line
MSC: DOK 2 NOT: 978-0-547-31534-8

17. ANS:
A, *C*, and *G*

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

18. ANS:
Two angles are complementary if the sum of their measures is 90°.

PTS: 1 DIF: Level A REF: MGEH0013 NAT: NT.CCSS.MTH.10.9-12.G.CO.1
TOP: Lesson 1.5 Describe Angle Pair Relationships KEY: complementary angles | definition
MSC: DOK 1 NOT: 978-0-547-31534-8

19. ANS:
3°

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

20. ANS:
$\angle 1$ or $\angle 3$

PTS: 1 DIF: Level A REF: MIM10112 NAT: NT.CCSS.MTH.10.9-12.G.CO.1
LOC: NCTM.PSSM.00.MTH.9-12.GEO.1.a
TOP: Lesson 1.5 Describe Angle Pair Relationships KEY: supplementary angles
MSC: DOK 1 NOT: 978-0-547-31534-8

21. ANS:
172°

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

22. ANS:
$x = 3$

PTS: 1 DIF: Level B REF: MLGE0198
LOC: NCTM.PSSM.00.MTH.9-12.PRS.3 | NCTM.PSSM.00.MTH.9-12.REP.2
TOP: Lesson 1.5 Describe Angle Pair Relationships
KEY: supplementary angles | adjacent angles | solve MSC: DOK 2
NOT: 978-0-547-31534-8

23. ANS:
5

PTS: 1 DIF: Level A REF: MLGM0004
TOP: Lesson 1.2 Use Segments and Congruence
KEY: segment length | segment addition postulate MSC: DOK 2
NOT: 978-0-547-31534-8

24. ANS:
6 meters

PTS: 1 DIF: Level B REF: 7f4eb5e5-cdbb-11db-b502-0011258082f7
TOP: Lesson 1.6 Classify Polygons KEY: regular polygon | octagon | side length
MSC: DOK 2 NOT: 978-0-547-31534-8

25. ANS:
34°, acute

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

26. ANS:
B

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

27. ANS:
$\angle DCE$, $\angle ECD$, $\angle C$

PTS: 1 DIF: Level A REF: XEGS0302 NAT: NT.CCSS.MTH.10.9-12.G.CO.1
TOP: Lesson 1.4 Measure and Classify Angles KEY: angle | name
MSC: DOK 1 NOT: 978-0-547-31534-8

28. ANS:
2.8 miles

PTS: 1 DIF: Level B REF: MC100259
LOC: NCTM.PSSM.00.MTH.9-12.GEO.2.a | NCTM.PSSM.00.MTH.9-12.PRS.2
TOP: Lesson 1.3 Use Midpoint and Distance Formulas
KEY: distance formula | coordinate geometry MSC: DOK 2
NOT: 978-0-547-31534-8

OTHER

29. ANS:
The figure is not a regular polygon because it is not equiangular.

PTS: 1 DIF: Level B REF: MAC20805
LOC: NCTM.PSSM.00.MTH.9-12.PRS.4 | NCTM.PSSM.00.MTH.9-12.REA.1 | NCTM.PSSM.00.MTH.9-12.COM.3 TOP: Lesson 1.6 Classify Polygons
KEY: polygon | regular polygon | explain MSC: DOK 3 NOT: 978-0-547-31534-8

30. ANS:
The figure is not a polygon because all sides are not segments.

PTS: 1 DIF: Level A REF: MAC20802
LOC: NCTM.PSSM.00.MTH.9-12.PRS.4 | NCTM.PSSM.00.MTH.9-12.REA.1 | NCTM.PSSM.00.MTH.9-12.COM.3 TOP: Lesson 1.6 Classify Polygons
KEY: polygon | determine | explain MSC: DOK 3 NOT: 978-0-547-31534-8

COMPLETION

31. ANS: equilateral

PTS: 1 DIF: Level A REF: BS022036 TOP: Lesson 1.6 Classify Polygons
KEY: definition | regular polygon MSC: DOK 1 NOT: 978-0-547-31534-8