Name:

Date: _____

Analytic Geometry for College Graduates Unit 1 Study Guide

1. Find the values of x and y. The diagram is not to scale.



2. Which lines are parallel if $m \angle 3 = m \angle 6$? Justify your answer.



- A. $l \parallel m$, by the Converse of the Alternate Interior Angles Theorem
- B. $r \parallel s$, by the Converse of the Same-Side Interior Angles Postulate
- C. $l \parallel m$, by the Converse of the Same-Side Interior Angles Postulate
- D. $r \parallel s$, by the Converse of the Alternate Interior Angles Theorem

3. Use the information given in the diagram. Tell why $\overline{MN} \cong \overline{PO}$ and $\angle NOM \cong \angle PMO$.



- A. Reflexive Property, Transitive Property
- B. Given, Given
- C. Given, Reflexive Property
- D. Transitive Property, Reflexive Property
- 4. Find the missing values of the variables. The diagram is not to scale.



- A. x = 74, y = 103
- B. x = 74, y = 93
- C. x = 103, y = 119
- D. x = 93, y = 74
- 5. The sum of the measures of two exterior angles of a triangle is 264. What is the measure of the third exterior angle?
 - A. 86
 - B. 106
 - C. 96
 - D. 84

6. Supply the reasons missing from the proof shown below. **Given:** $\overline{AB} \cong \overline{AC}, \ \angle BAD \cong \angle CAD$ **Prove:** \overline{AD} bisects \overline{BC}



- B. SSS; Reflexive Property
- C. ASA; Corresp. parts of $\cong \Delta$ are \cong .
- D. SAS; Reflexive Property
- 7. This jewelry box has the shape of a regular pentagon. It is packaged in a rectangular box as shown here. The box uses two pairs of congruent right triangles made of foam to fill its four corners. Find the measure of the foam angle marked.



- A. 18°
- B. 36°
- C. 72°
- D. 54°

8. Find the measure of the numbered angles in the rhombus. The diagram is not to scale.



- A. $m \angle 1 = 90, m \angle 2 = 24, \text{ and } m \angle 3 = 66$
- B. $m \angle 1 = 90$, $m \angle 2 = 66$, and $m \angle 3 = 24$
- C. $m \angle 1 = 90, m \angle 2 = 24, \text{ and } m \angle 3 = 78$
- D. $m \angle 1 = 90, m \angle 2 = 24, \text{ and } m \angle 3 = 24$



Are the polygons similar? If they are, write a similarity statement and give the scale factor.

10.

11.



Not drawn to scale.

A.	<i>ABCD</i> ~ <i>KLMN</i> ; 10 : 1.2	C.	<i>ABCD</i> ~ <i>NKLM</i> ; 5 : 3.12
B.	<i>ABCD</i> ~ <i>KLMN</i> ; 5 : 1.2	D.	The polygons are not similar.

Which theorem or postulate proves the two triangles are similar?



Not drawn to scale.

- A. SSS Theorem
- B. AA Postulate
- C. AS Postulate
- D. SAS Theorem

12. Find the length of the altitude drawn to the hypotenuse. The triangle is not drawn to scale.



13. What is the value of x, given that $\overline{PQ} \parallel \overline{BC}$?



14. The dashed-lined figure is a dilation image of *EFGH*. Is $D_{(n,H)}$ an enlargement or a reduction?

What is the scale factor n of the dilation?



15. From the similar triangles in the diagram, write a proportion using the ratio $\frac{WX}{WV}$.



- 16. Irene places a mirror on the ground at the base of an oak tree, that is 42 feet tall. She walks backward until she can see the top of the tree in the middle of the mirror. At that point, Irene's eyes are 14 ft above the ground, and her feet are 12 ft from the mirror. How far is she from the mirror/oak tree?
 - A. 36
 - B. 20
 - C. 25
 - D. 28.33

Analytic Geometry for College Graduates Unit 1 Study Guide Answer Section

1.	ANS:	D PTS: 1	DIF:	L4	REF:	2-2 Properties of Parallel Lines			
	OBJ:	2-2.2 To use properties of parallel lines to find angle measures							
	NAT:	: CC G.CO.9 M.1.d G.3.g TOP: 2-2 Problem 4 Finding an Angle Measure							
	KEY:	EY: corresponding angles parallel lines							
2.	ANS:	D PTS: 1	DIF:	L2	REF:	2-3 Proving Lines Parallel			
	OBJ:	2-3.1 To determine whether two	o lines are	parallel	NAT:	CC G.CO.9 G.3.b G.3.g			
	TOP:	TOP: 2-3 Problem 3 Determining Whether Lines are Parallel							
	KEY:	parallel lines reasoning							
3.	ANS:	B PTS: 1	DIF:	L3	REF:	3-1 Congruent Figures			
	OBJ:	3-1.1 To recognize congruent fi	igures and	their correspo	onding	parts			
	NAT:	CC G.SRT.5 G.2.e G.3.e	TOP:	3-1 Problem	4 Prov	ng Triangles Congruent			
	KEY:	congruent polygons correspon	ding parts	proof					
4.	ANS:	D PTS: 1	DIF:	L3	REF:	5-1 The Polygon Angle-Sum Theorems			
	OBJ:	5-1.1 To find the sum of the m	he measures of the interior angles of a polygon						
	NAT:	CC G.SRT.5 M.1.d G.3.f	TOP:	: 5-1 Problem 3 Using the Polygon Angle-Sum Theorem					
	KEY:	exterior angle Polygon Angle-	Sum Theo	orem					
5.	ANS:	C PTS: 1	DIF:	L3	REF:	5-1 The Polygon Angle-Sum Theorems			
	OBJ: 5-1.2 To find the sum of the measures of the exterior angles of a polygon								
	NAT:	F: CC G.SRT.5 M.1.d G.3.fTOP: 5-1 Problem 4 Finding an Exterior Angle Measure							
	KEY:	exterior angle Polygon Angle-	Sum Theo	orem					
6.	ANS:	A PTS: 1	DIF:	L4	REF:	3-5 Isosceles and Equilateral Triangles			
	OBJ:	3-5.1 To use and apply properties of isosceles and equilateral triangles							
	NAT:	: CC G.CO.10 CC G.CO.13 CC G.SRT.5 G.1.c G.2.e G.3.e							
	TOP:	3-5 Problem 1 Using the Isosce	eles Triang	gle Theorems					
	KEY:	segment bisector isosceles tria	ngle proc	of two-colum	n proof				
7.	ANS:	C PTS: 1	DIF:	L4	REF:	5-1 The Polygon Angle-Sum Theorems			
	OBJ:	5-1.2 To find the sum of the measures of the exterior angles of a polygon							
	NAT:	CC G.SRT.5 M.1.d G.3.f	TOP:	5-1 Problem	4 Findi	ng an Exterior Angle Measure			
	KEY:	regular polygon Polygon Angl	e-Sum Th	eorem					
8.	ANS:	A PTS: 1	DIF:	L3					
	REF:	REF: 5-4 Properties of Rhombuses, Rectangles, and Squares							
	OBJ:	5-4.2 To use properties of diago	$\frac{1}{100}$ of rh	ombuses and	rectang				
	NAI:	CC G.CO.II CC G.SKI.5 G.I.G	C G.3.I		TOP:	5-4 Problem 2 Finding Angle Measures			
0	KEY:	diagonal rnombus	DIE	т. 4	DEE				
9.	ANS:	A PIS: I	DIF:	L4	KEF:	6-1 Ratios and Proportions			
OBJ: 6-1.1 To write ratios and solve proportions NAT: CC G.SRT.5 N.4.c									
	TOP: VEV:	o-1 Problem 4 Solving a Propo	4 Solving a Proportion Cross Product Proporty extremes means						
10	NEI.	D D D D D D D D D D D D D D D D D D D			DEE.	() Similar Dalaman			
10.	ANS:	U PIS: 1 6.2.1 To identify and apply size	DIF: vilor nolva	L4	KEF:	0-2 Similar Polygons			
	UDJ: MAT	$CC \subseteq SDT \leq M \leq M \geq M$			TOD	6.2 Problem 2 Determining Similarity			
	NAT:	cc G.SK1.3 WI.1.0 WI.2.1 MI.3.	a 0.2.e C	1.5.0	TOP:	0-2 FIODEIII 2 Determining Similarity			
	NCI.	similar polygons scale factor							

11.	ANS:	В	PTS:	1	DIF:	L3	REF:	6-3 Proving Triangles Similar	
	OBJ: 6-3.1 To use the AA Similarity Postulate and the SAS a					d SSS	Similarity Theorems		
	NAT: CC G.SRT.5 CC G.GPE.5 G.2.e G.3.e G.5.e					5.e			
	TOP:	ΓΟΡ: 6-3 Problem 3 Proving Triangles Similar					KEY:	Angle-Angle Similarity Postulate	
12.	ANS:	С	PTS:	1	DIF:	L3	REF:	6-4 Similarity in Right Triangles	
	OBJ:	6-4.1 To find	and us	e relationships	in sim	ilar triangles	NAT:	CC G.SRT.5 CC G.GPE.5 G.2.e G.3.e	
	TOP:	6-4 Problem	3 Using	g the Corollarie	es				
	KEY: corollaries of the geometric mean proportion								
13.	ANS:	D	PTS:	1	DIF:	L2	REF:	6-5 Proportions in Triangles	
	OBJ: 6-5.1 To use the Side-Splitter Theorem and the Triangle- Angle-Bisector Theorem								
	NAT: CC G.SRT.4 N.4.c M.3.a TOP: 6-5 Problem					6-5 Problem 1	1 Using the Side-Splitter Theorem		
	KEY:	Side-Splitter	Theore	m					
14.	ANS:	В	PTS:	1	DIF:	L3	REF:	6-6 Dilations	
	OBJ:	6-6.1 To und	erstand	dilation image	s of fig	gures	NAT:	CC G.CO.2 G.2.c G.2.d	
	TOP: 6-6 Problem 1 Finding a Scale Factor					KEY:	dilation enlargement scale factor		
15.	ANS:	В	PTS:	1	DIF:	L3	REF:	6-4 Similarity in Right Triangles	
	OBJ:	6-4.1 To find	and us	e relationships	in sim	ilar triangles	NAT:	CC G.SRT.5 CC G.GPE.5 G.2.e G.3.e	
	TOP: 6-4 Problem 1 Identifying Similar Triangles				KEY:	similar triangles altitude proportion			
16.	ANS:	А	PTS:	1					

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