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## Analytic Geometry for College Graduates Unit 1 Study Guide

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

A. $x=63, y=77$
B. $x=51, y=63$
C. $x=77, y=65$
D. $x=77, y=63$
2. Which lines are parallel if $m \angle 3=m \angle 6$ ? Justify your answer.

A. $\quad l \| m$, by the Converse of the Alternate Interior Angles Theorem
B. $r \| s$, by the Converse of the Same-Side Interior Angles Postulate
C. $l \| m$, by the Converse of the Same-Side Interior Angles Postulate
D. $r \| s$, by the Converse of the Alternate Interior Angles Theorem
3. Use the information given in the diagram. Tell why $\overline{M N} \cong \overline{P O}$ and $\angle N O M \cong \angle P M O$.

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: $\overline{A B} \cong \overline{A C}, \angle B A D \cong \angle C A D$
Prove: $\overline{A D}$ bisects $\overline{B C}$


| Statements | Reasons |
| :--- | :--- |
| 1. $\overline{A B} \cong \overline{A C}$ | 1. Given |
| 2. $\angle B A D \cong \angle C A D$ | 2. Given |
| 3. $\overline{A D} \cong \overline{A D}$ | 3. Reflexive Property |
| 4. $\triangle B A D \cong \triangle C A D$ | 4. $\frac{?}{?}$ |
| 5. $\overline{B D} \cong \overline{C D}$ | 5. ? |
| 6. $\overline{A D}$ bisects $\overline{B C}$ | 6. Definition of segment bisector |

A. SAS; Corresp. parts of $\cong \Delta$ are $\cong$.
C. ASA; Corresp. parts of $\cong \Delta$ are $\cong$.
B. SSS; Reflexive Property
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. $18^{\circ}$
B. $36^{\circ}$
C. $72^{\circ}$
D. $54^{\circ}$
8. Find the measure of the numbered angles in the rhombus. The diagram is not to scale.

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

## What is the solution of each proportion?

9. $\frac{3 y-8}{12}=\frac{y}{5}$
A. $\frac{40}{3}$
B. -10
C. $\frac{3}{40}$
D. -7

Are the polygons similar? If they are, write a similarity statement and give the scale factor.
10.


Not drawn to scale.
A. $A B C D \sim K L M N ; 10: 1.2$
C. $A B C D \sim N K L M ; 5: 3.12$
B. $A B C D \sim K L M N ; 5: 1.2$
D. The polygons are not similar.

Which theorem or postulate proves the two triangles are similar?
11.


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.

A. $\sqrt{21}$
B. 80
C. $4 \sqrt{5}$
D. 21
13. What is the value of $x$, given that $\overline{P Q} \| \overline{B C}$ ?

A. 11
B. 10
C. 16
D. 8
14. The dashed-lined figure is a dilation image of $E F G H$. Is $D_{(n, H)}$ an enlargement or a reduction?
What is the scale factor $n$ of the dilation?

A. $n=\frac{1}{3}$; reduction
B. $n=3$; enlargement
C. $n=6$; enlargement
D. $n=3$; reduction
15. From the similar triangles in the diagram, write a proportion using the ratio $\frac{W X}{W V}$.

A. $\frac{V Y}{V X}=\frac{W Y}{W V}$
B. $\frac{V X}{V Y}=\frac{W V}{W Y}$
C. $\frac{W V}{V Y}=\frac{V X}{X Y}$
D. $\frac{V X}{X Y}=\frac{W V}{V Y}$
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




