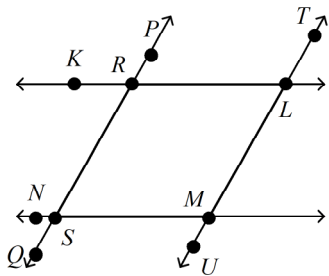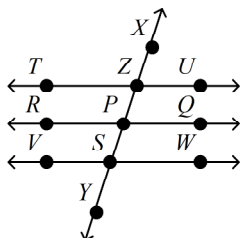## Geometry Unit 2 Practice Test

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

1. In the figure, $m\angle NML = 120$, $\overleftrightarrow{PQ} \parallel \overleftrightarrow{TU}$ and $\overleftrightarrow{KL} \parallel \overleftrightarrow{NM}$. Find the measure of angle *PRK*.

   a. 120   c. 100
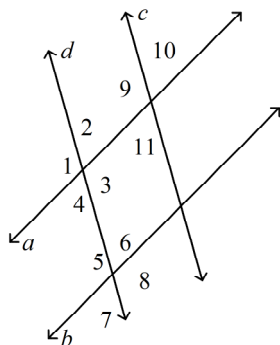   b. 60   d. 40

2. In the figure, $m\angle RPZ = 95$ and $\overleftrightarrow{TU} \parallel \overleftrightarrow{RQ} \parallel \overleftrightarrow{VW}$. Find the measure of angle *WSP*.

   a. 85   c. 95
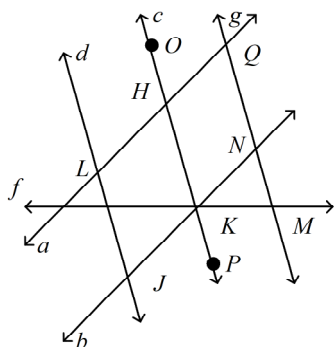   b. 75   d. 65

Given the following information, determine which lines, if any, are parallel. State the postulate or theorem that justifies your answer.

3. $\angle 2 \cong \angle 7$

   a. $a \parallel b$; congruent corresponding angles
   b. $c \parallel d$; congruent alternate exterior angles
   c. $c \parallel d$; congruent corresponding angles

   d. $a \parallel b$; congruent alternate exterior angles

4. $\angle JKH \cong \angle KNQ$

   a. $a \parallel b$; congruent alternate interior angles
   b. $c \parallel g$; congruent corresponding angles
   c. $a \parallel b$; congruent corresponding angles
   d. $c \parallel g$; congruent alternate interior angles

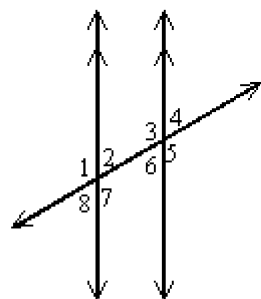*Identify the pair of angles as alternate interior, alternate exterior, consecutive interior, or vertical.*
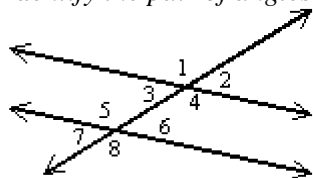
5. $\angle 3$ and $\angle 5$
   a. alternate interior
   b. alternate exterior
   c. consecutive interior
   d. vertical

6. Given $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$ and $m\angle 5 = 89$. Find the measure of $\angle 3$.
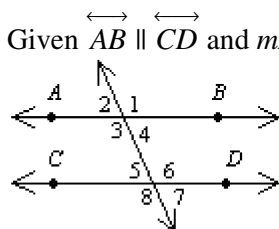
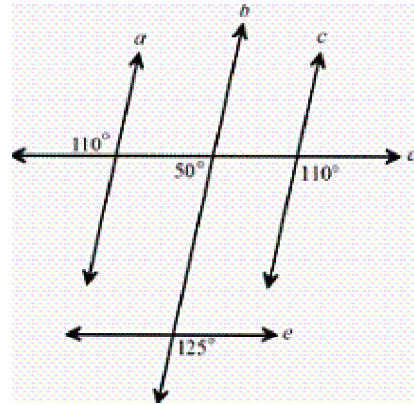   a. $101\,°$
   b. $89\,°$
   c. $91\,°$
   d. $99\,°$

7. If $m\angle 1 = 6x + 46$ and $m\angle 5 = 7x + 37$, find x, $m\angle 1$, and $m\angle 5$.
   a. $x = 4$, $m\angle 1 = 70$, $m\angle 5 = 65$
   b. $x = 9$, $m\angle 1 = 9$, $m\angle 5 = 26$
   c. $x = 9$, $m\angle 1 = 100$, $m\angle 5 = 100$
   d. $x = 4$, $m\angle 1 = 70$, $m\angle 5 = 70$

8.

Which statement is true based on the figure?

a. $a \parallel b$
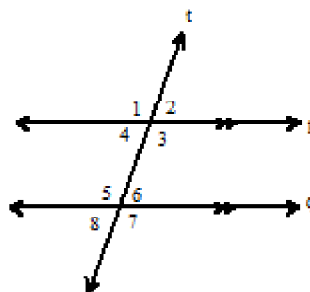
c. $d \parallel e$

b. $a \parallel c$

d. $b \parallel c$

For # 9-10 use the following:
Given: $p \parallel q$
Prove: $\angle 1$ and $\angle 6$ are supplementary

| Statements	Reasons
$p \parallel q$	Given
9.	Consecutive Interior Angles Theorem
$m\angle 3 + m\angle 6 = 180$	Definition of Supplementary Angles
$\angle 1 \cong \angle 3$	10.
$m\angle 1 = m\angle 3$	Definition of Congruence
$m\angle 1 + m\angle 6 = 180$	Substitution
$\angle 1$ and $\angle 6$ are supplementary	Definition of Supplementary Angles

9. Choose one of the following to complete the proof.

   a. $\angle 4$ and $\angle 1$ are supplementary   c. $\angle 3$ and $\angle 6$ are supplementary

   b. $\angle 7$ and $\angle 8$ are supplementary   d. $\angle 1$ and $\angle 2$ are supplementary

10. Choose one of the following to complete the proof.

   a. Alternate Interior Angles Theorem – If two angles are alternate interior, then they have congruent angle measures

   c. Vertical Angle Theorem- If two angles are vertical angles, then they have congruent angle measures

   b. Alternate Exterior Angles Theorem – If two angles are alternate exterior, then they have congruent angle measures

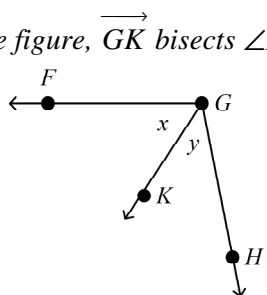   d. Corresponding Angles Theorem – If two angles are corresponding, then they have congruent angle measures

11. *Measure the angle and classify it as* right, acute, *or* obtuse.

∠3
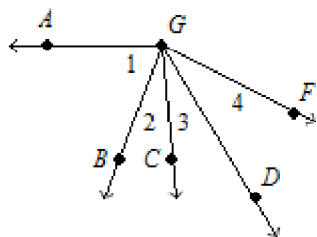
a. 26, acute
b. 154, obtuse

c. 159, acute
d. 21, obtuse

12. *In the figure,* $\overrightarrow{GK}$ *bisects* $\angle FGH$.

If $m\angle FGK = 5v - 1$ and $m\angle KGH = 3v + 3$, find x.
a. 10
b. 9

c. 2
d. 18

13.

Which of the following options correctly explains how to find the value of x in the figure below?
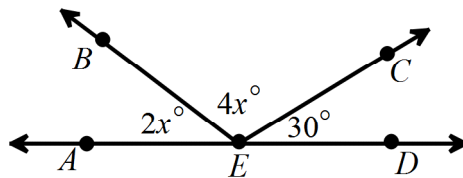
a. Since $\overrightarrow{EA}$ and $\overrightarrow{ED}$ are opposite rays, and $\overrightarrow{EB}$ and $\overrightarrow{EC}$ are opposite rays, $\angle AEB$ and $\angle DEB$ are vertical angles. Vertical angles are congruent and have the same measure, so $m\angle AEB = m\angle DEC$. Using substitution gives the equation, $2x = 30$. Dividing by 2 on both sides gives $x = 15$.

c. Since $\angle AED$ is a straight angle, its measure is $180°$. By the Angle Addition Postulate, $m\angle AEB + m\angle BEC + m\angle CED = m\angle$. Using substitution gives the equation, $2x + 4x + 30 = 180$. After combining like terms the equation becomes $6x + 30 = 180$. Subtracting both sides by 30, and then dividing both sides by 6 gives $x = 25$.

b. Since $\overrightarrow{EA}$ and $\overrightarrow{ED}$ are opposite rays, and $\overrightarrow{EB}$ and $\overrightarrow{EC}$ are opposite rays, $\angle AEB$ and $\angle DEB$ are vertical angles. Vertical angles are complimentary meaning their measures add up to $90°$, so $m\angle AEB + m\angle DEC = 90°$. Using substitution gives the equation, $2x + 30 = 90$. Subtracting both sides by 30, and then dividing both sides by 2 gives $x = 30$.

d. Since $\angle AED$ is a straight angle, its measure is $90°$. By the Angle Addition Postulate, $m\angle AEB + m\angle BEC + m\angle CED = m\angle$. Using substitution gives the equation, $2x + 4x + 30 = 90$. After combining like terms the equation becomes $6x + 30 = 90$. Subtracting both sides by 30, and then dividing both sides by 6 gives $x = 10$.

Given: ∠1 and ∠2 are supplementary, and $m\angle 1 = 135°$
Prove: $m\angle 2 = 45°$
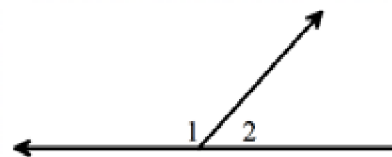
Statements	Reasons
∠1 and ∠2 are supplementary	Given
[1]	Given
$m\angle 1 + m\angle 2 = 180°$	[2]
$135° + m\angle 2 = 180°$	Substitution Property of Equality
$m\angle 2 = 45°$	[3]

14.

a. [1] $m\angle 2 = 135°$

[2] Definition of Supplementary Angles

[3] Subtraction Property of Equality

c. [1] $m\angle 1 = 135°$

[2] Definition of Supplementary Angles

[3] Subtraction Property of Equality

b. [1] $m\angle 1 = 135°$

[2] Definition of Supplementary Angles

[3] Substitution Property of Equality

d. [1] $m\angle 1 = 135°$

[2] Definition of Complementary Angles

[3] Subtraction Property of Equality

15. $\overrightarrow{EB}$ is the angle bisector of $\angle AEC$. What is the value of x?
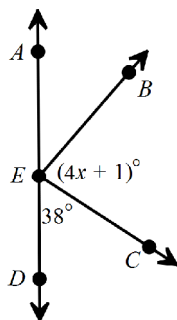
a. $x = 35$

c. $x = 51.5$

b. $x = 17.5$

d. $x = 142$

Short Answer

16.

Complete the Algebraic Proof.

Statement	Reason
$6x - 12 = 24$	

17.

In the diagram below, line p is parallel to line j and line t is perpendicular to $\overrightarrow{AB}$. What is the measure of $\angle BAC$?
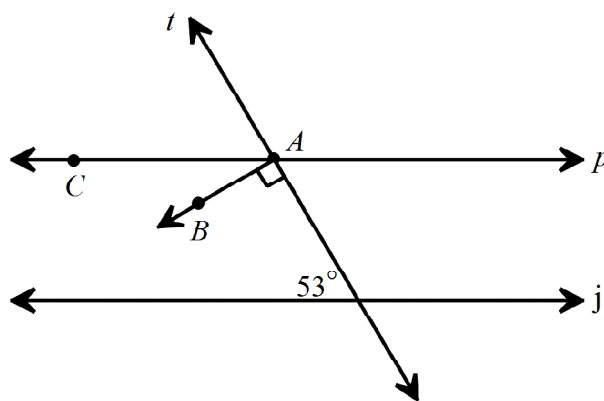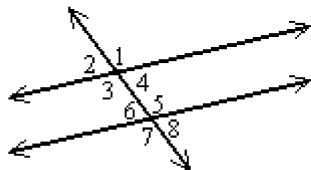

18. In the figure $m\angle FGI = (2x + 9)°$ and $m\angle HGI = (4x - 15)°$. Find $m\angle FGI$ and $m\angle HGI$.
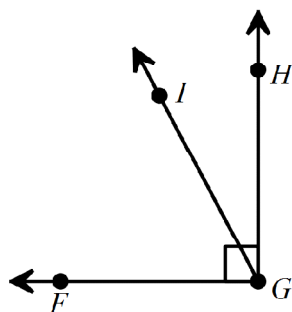
19. Draw two lines and a transversal such that ∠1 and ∠2 are alternate interior angles, ∠2 and ∠3 are corresponding angles, and ∠3 and ∠4 are alternate exterior angles. What type of angle pair is ∠2 and ∠4?
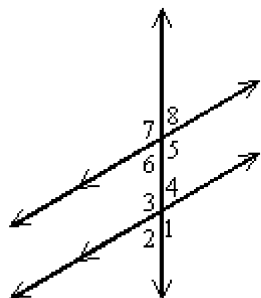
_____

Identify the pair of angles as alternate interior, alternate exterior, consecutive interior, or vertical.
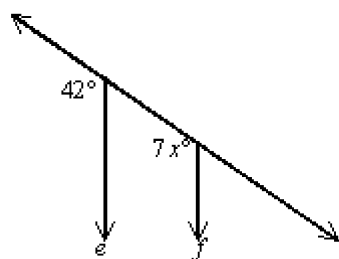

20. ∠6 and ∠4

_____

21. In the figure, $l \parallel m$ and $j \parallel k$. Name all angles congruent to ∠14.
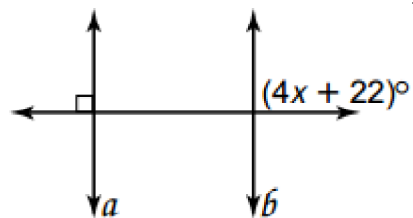

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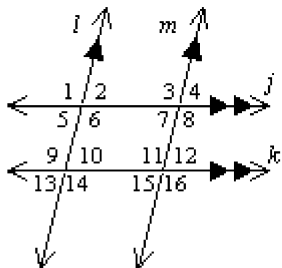
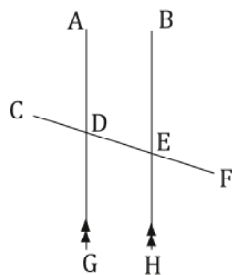22. If $m\angle 4 = 3x$ and $m\angle 5 = 6x - 180$, find x, $m\angle 4$, and $m\angle 5$.

_____

23.

Find x so that e ‖ f.

_____

24. **Find x so that a ‖ b.**

$(4x + 22)°$

_____

m∠ADF=2X+4°, m∠HEC=4X-14°. Find m∠HEC.

25.

_____

26.

Solve for *x* and *y* so that $a \parallel b \parallel c$.