Chapter 3 Checklist: Parallel and Perpendicular Lines Your Name:_____

You MUST complete all of these packet items in order to take your test!

_____Constructions Practice Ch 3

_____ 3-6 Constructions Quiz (2 Points)

_____3-1 Notes (1 Point)

_____ Standardized Test Prep 3-1

_____ 3-1 Quiz (5 Points)

_____3-2 Notes (1 Point)

_____ Standardized Test Prep 3-2

_____ 3-2 Quiz (3 Points)

_____3-3 Notes (1 Point)

_____ Standardized Test Prep 3-3

_____ 3-3 Quiz (2 Points)

_____3-4 Notes (1 Point)

_____ Standardized Test Prep 3-4

_____ 3-4 Quiz (2 Points)

_____3-5 Notes (1 Point)

_____ Standardized Test Prep 3-5

_____ 3-5 Quiz (4 Points)

_____3-7 Notes (1 Point)

_____ Standardized Test Prep 3-7

_____ 3-7 Quiz (5 Points)

_____3-8 Notes (1 Point)

_____ Standardized Test Prep 3-8

_____ 3-8 Quiz (4 Points)

_____ 3-1 Games and Puzzles Activity

_____ Parallel Lines and Transversals Worksheet

_____ Proving Lines Parallel Worksheet

_____ 3-3 Games and Puzzles Activity

_____Angles In a Triangle Worksheet

_____ Parallel Lines in the Coordinate Plane Worksheet

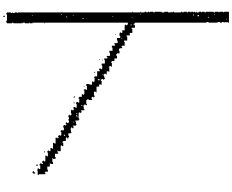
_____ Chapter 3 Project – Geometer's Sketchpad Activity (5 Pts)

_____ Chapter 3 Vocabulary Test (10 Points)

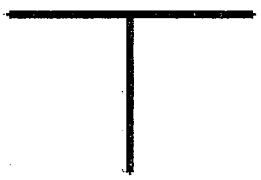
_____ Chapter 3 Test (25 Points)

Not Parallel

Parallel



Not Perpendicular



Perpendicular

Chapter 3: Parallel and Perpendicular Vocab List

All Previous Chapter Words!

Corresponding Angles

Alternate Interior Angles

Alternate Exterior Angles

Same Side Interior Angles

Parallel Lines

Perpendicular Lines

Transversal Line

Skew Lines

Remote Interior Angles

Exterior Angle

Triangle Exterior Angle Theorem

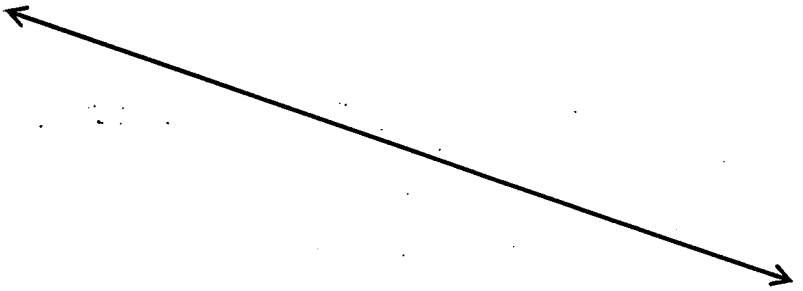
Slope

Slope-Intercept Form

Point-Slope Form

Name_____
Date_____
Geometry Period _____
Constructions Practice Ch3

Construct a line perpendicular to the one below.



Construct a line parallel to the one below.

Name _____
Teacher _____
Class/Period _____
Date_____

Topic: Tools of Geometry

Patch High School~Home of the Panther

3.1: Lines and Angles

Summary:

Name _____ Class _____ Date _____

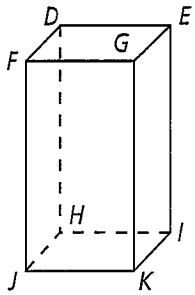
3-1 Standardized Test Prep

Lines and Angles

Multiple Choice

For Exercises 1–7, choose the correct letter.

For Exercises 1–3, use the figure at the right.



1. Which line segment is parallel to $\overline{GE}$?

   (A) $\overline{DH}$ (C) $\overline{FG}$

   (B) $\overline{KI}$ (D) $\overline{HI}$

2. Which two line segments are skew?

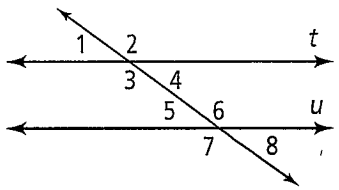
   (F) $\overline{DE}$ and $\overline{GE}$ (H) $\overline{EI}$ and $\overline{GK}$

   (G) $\overline{GK}$ and $\overline{DH}$ (I) $\overline{HI}$ and $\overline{DF}$

3. Which line segment is parallel to plane *FGKJ*?

   (A) $\overline{FD}$ (B) $\overline{HI}$ (C) $\overline{GE}$ (D) $\overline{KI}$

For Exercises 4–7, use the figure at the right.



4. Which is a pair of alternate interior angles?

   (F) $\angle 3$ and $\angle 6$ (H) $\angle 6$ and $\angle 5$

   (G) $\angle 2$ and $\angle 7$ (I) $\angle 4$ and $\angle 6$

5. Which angle corresponds to $\angle 7$?

   (A) $\angle 1$ (B) $\angle 3$ (C) $\angle 4$ (D) $\angle 6$

6. Which pair of angles are alternate exterior angles?

   (F) $\angle 1$ and $\angle 5$ (G) $\angle 3$ and $\angle 6$ (H) $\angle 5$ and $\angle 8$ (I) $\angle 1$ and $\angle 8$

7. Which pair of angles are same-side interior angles?

   (A) $\angle 1$ and $\angle 5$ (B) $\angle 3$ and $\angle 6$ (C) $\angle 4$ and $\angle 8$ (D) $\angle 3$ and $\angle 5$

Short Response

8. Describe the parallel planes, parallel lines, and skew lines in a cube. Draw a sketch to illustrate your answer.

Topic:

3.2: Properties of Parallel Lines

and

3.3: Proving Lines Parallel

Summary:

Name _____ Class _____ Date _____

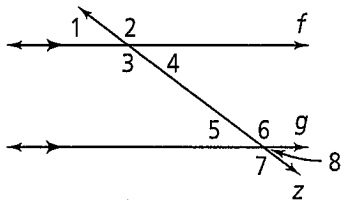
3-2 Standardized Test Prep

Properties of Parallel Lines

Multiple Choice

For Exercises 1–6, choose the correct letter.

For Exercises 1–4, use the figure at the right.



1. Which angle is congruent to $\angle 1$?

   (A) $\angle 2$ (C) $\angle 6$

   (B) $\angle 5$ (D) $\angle 7$

2. Which angle is not supplementary to $\angle 6$?

   (F) $\angle 2$ (G) $\angle 4$ (H) $\angle 5$ (I) $\angle 8$

3. Which can be used to prove directly that $\angle 1 \cong \angle 8$?

   (A) Alternate Interior Angles Theorem

   (B) Corresponding Angles Postulate

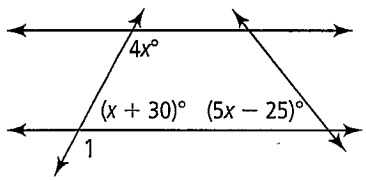
   (C) Same-Side Interior Angles Theorem

   (D) Alternate Exterior Angles Theorem

4. If $m\angle 5 = 42$, what is $m\angle 4$?

   (F) 42 (G) 48 (H) 128 (I) 138

For Exercises 5 and 6, use the figure at the right.



Show Work! 5. What is the value of x?

   (A) 10 (C) 30

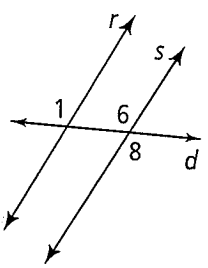
   (B) 25 (D) 120

Show Work! 6. What is the measure of $\angle 1$?

   (F) 45 (G) 60 (H) 120 (I) 125

Short Response

Show Proof! 7. Write a two-column proof of the Alternate Exterior Angles Theorem (Theorem 3-2).



Given: $r \parallel s$

Prove: $\angle 1 \cong \angle 8$

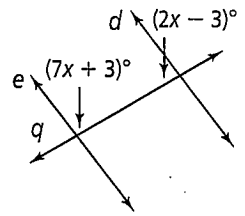
Name _____ Class _____ Date _____

3-3 Standardized Test Prep

Proving Lines Parallel

Multiple Choice

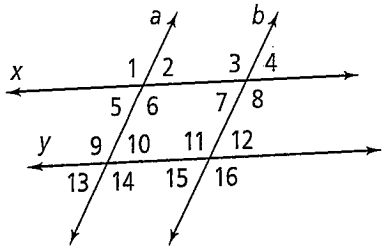
For Exercises 1–6, choose the correct letter.



Show Work! **1.** For what value of x is $d \parallel e$?

(A) 20 (B) 25 (C) 35 (D) 37

For Exercises 2 and 3, use the figure below right.



2. Which statement proves that $a \parallel b$?

(F) $\angle 8$ is supplementary to $\angle 12$. (H) $\angle 1 \cong \angle 6$

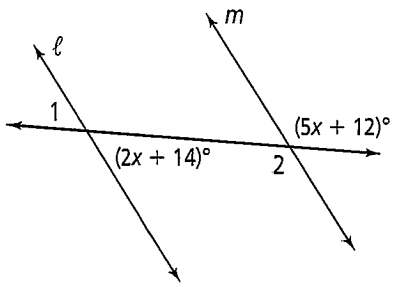
(G) $\angle 10$ is supplementary to $\angle 11$. (I) $\angle 5 \cong \angle 13$

3. Which statement proves that $x \parallel y$?

(A) $\angle 2$ is supplementary to $\angle 3$. (C) $\angle 6 \cong \angle 9$

(B) $\angle 14$ is supplementary to $\angle 15$. (D) $\angle 12 \cong \angle 13$

For Exercises 4–6, use the figure at the right.



Show Work! **4.** If $\ell \parallel m$, what is $m\angle 1$?

(F) 22 (G) 58 (H) 122 (I) 130

5. For what value of x is $\ell \parallel m$?

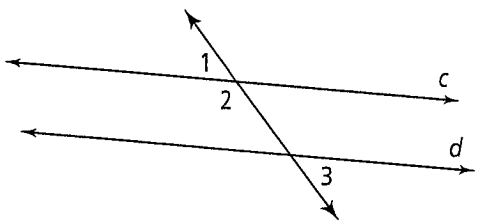
(A) 22 (B) 54 (C) 58 (D) 122

Show Work! **6.** If $\ell \parallel m$, what is $m\angle 2$?

(F) 22 (G) 58 (H) 122 (I) 130

Short Response

Show Proof! **7.** Write a flow proof.



Given: $\angle 2$ and $\angle 3$ are supplementary.

Prove: $c \parallel d$

Topic:

3.4: Parallel and Perpendicular Lines
and
3.5: Parallel Lines and Triangles

Summary:

Name _____ Class _____ Date _____

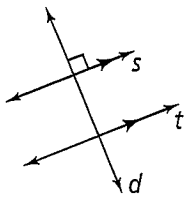
3-4 Standardized Test Prep

Parallel and Perpendicular Lines

Multiple Choice

For Exercises 1–5, choose the correct letter.

1. Which can be used to prove $d \perp t$?



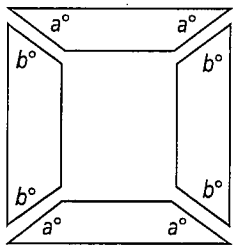
   (A) Transitive Property of Parallel Lines

   (B) Transitive Property of Congruence

   (C) Perpendicular Transversal Theorem

   (D) Converse of the Corresponding Angles Postulate

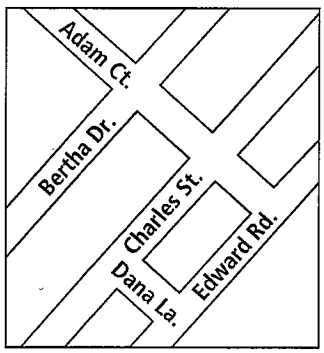
2. A carpenter is building a frame. Which values of a and b will ensure that the sides of the finished frame are parallel?



   (F) $a = 40$ and $b = 60$ (H) $a = 30$ and $b = 60$

   (G) $a = 45$ and $b = 50$ (I) $a = 40$ and $b = 40$

For Exercises 3 and 4, use the map at the right.



3. If Adam Ct. is perpendicular to Bertha Dr. and Charles St., what must be true?

   (A) Adam Ct. $\perp$ Edward Rd. (C) Adam Ct. $\parallel$ Dana La.

   (B) Bertha Dr. $\parallel$ Charles St. (D) Dana La. $\perp$ Charles St.

4. Adam Ct. is perpendicular to Charles St. and Charles St. is parallel to Edward Rd. What must be true?

   (F) Adam Ct. $\perp$ Edward Rd. (H) Bertha Dr. $\parallel$ Charles St.

   (G) Adam Ct. $\parallel$ Dana La. (I) Dana La. $\perp$ Charles St.

5. If $a \perp b$, $b \perp c$, $c \parallel d$, and $d \perp e$, which is not true?

   (A) $a \perp e$ (C) $a \parallel d$

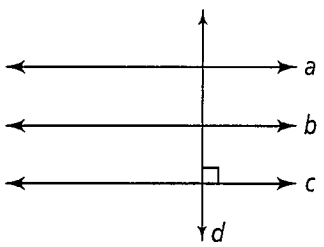
   (B) $a \parallel c$ (D) $b \parallel d$

Short Response

6. Write a paragraph proof.

   Given: $a \parallel b$, $b \parallel c$, and $d \perp c$

   Prove: $a \perp d$



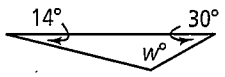
Name _____ Class _____ Date _____

3-5 Standardized Test Prep

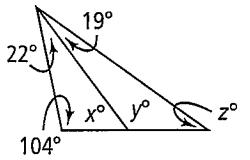
Parallel Lines and Triangles

Gridded Response

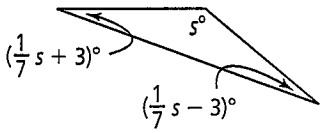
Show Work! **1.** What is the value of w?



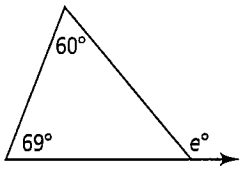
Show Work! **2.** What is the value of z?



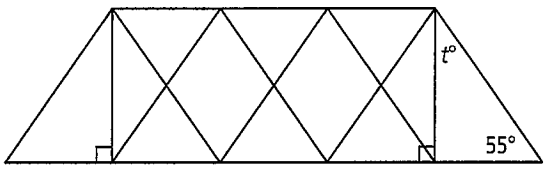
Show Work! **3.** What is the value of s?



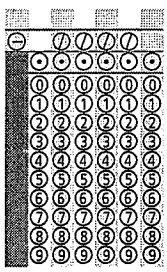
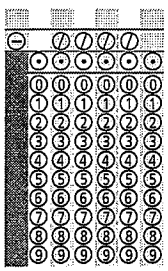
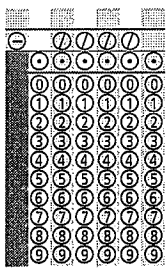
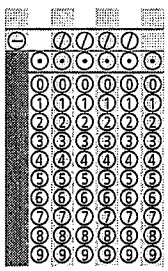
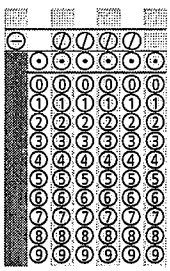
Show Work! **4.** What is the value of e?



Show Work! **5.** What is the value of t on the truss of the bridge?



Answers

1. 
2. 
3. 
4. 
5. 

Topic:

3.7: Equations of Lines In the Coordinate Plane

Summary:

Name _____ Class _____ Date _____

3-7 Standardized Test Prep

Equations of Lines in the Coordinate Plane

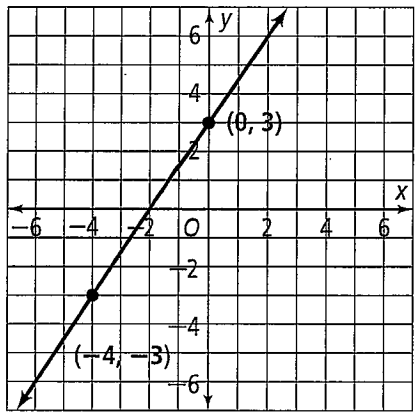
Multiple Choice

For Exercises 1–4, choose the correct letter.

Show Work! **1.** What is the slope of the line passing through the points (2, 7) and (−1, 3)?

(A) $\frac{2}{7}$ (B) $\frac{3}{4}$ (C) $\frac{4}{3}$ (D) $\frac{1}{3}$

2. What is the correct equation of the line shown at the right?



(F) $y = \frac{3}{2}x + 3$ (H) $y = \frac{2}{3}x + 3$

(G) $y = -\frac{3}{2}x - 3$ (I) $y = -\frac{2}{3}x - 3$

Show Work! **3.** The x-intercept of a line is -5 and the y-intercept of the line is -2. What is the equation of the line?

(A) $y = -\frac{5}{2}x - 5$ (C) $y = -\frac{5}{2}x - 2$

(B) $y = \frac{2}{5}x + 2$ (D) $y = -\frac{2}{5}x - 2$

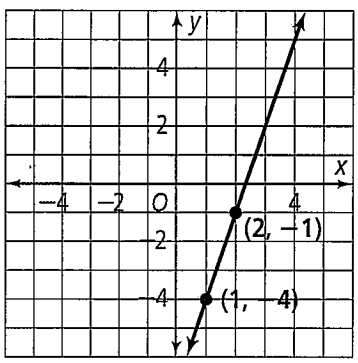
Show Work! **4.** What is the slope-intercept form of the equation $y - 7 = -\frac{5}{2}(x + 4)$?

(F) $y - 2 = -\frac{5}{2}(x + 2)$ (H) $y = -\frac{4}{7}x + 2$

(G) $y + 7 = -x + \frac{5}{2}$ (I) $y = -\frac{5}{2}x - 3$

Short Response

5. Error Analysis A student has attempted to graph an equation that contains the point (1, −4) and has a slope of $\frac{1}{3}$.



Show Work! a. What is the correct equation in slope-intercept form?

b. What is the student's error on the graph?

Topic:

3.8: Slopes of Parallel and Perpendicular Lines

Summary:

Name _____ Class _____ Date _____

3-8 Standardized Test Prep

Slopes of Parallel and Perpendicular Lines

Multiple Choice

For Exercises 1–4 choose the correct letter.

1. Which pair of slopes could represent perpendicular lines?

   (A) $\frac{1}{7}, 7$ (B) $\frac{1}{2}, \frac{2}{4}$ (C) $-\frac{3}{4}, \frac{4}{3}$ (D) $\frac{1}{3}, \frac{1}{3}$

Show Work!

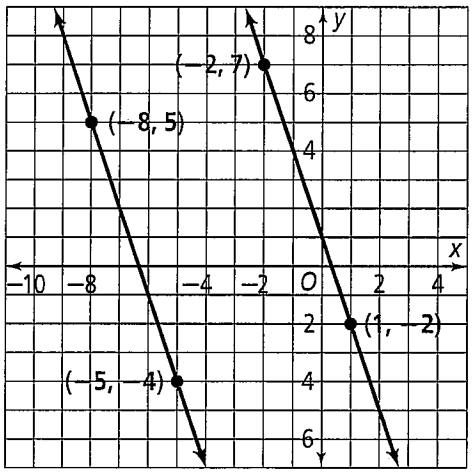
2. The lines shown in the figure at the right are

   (F) parallel.

   (G) perpendicular.

   (H) neither parallel nor perpendicular.

   (I) both parallel and perpendicular.



3. Two lines are perpendicular when

   (A) the product of their slopes is -1.

   (B) the product of their slopes is greater than 0.

   (C) they have the same slope.

   (D) their slopes are undefined.

Show Work!

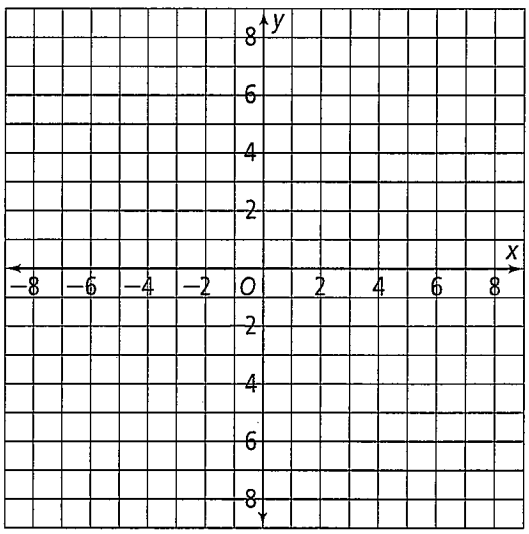
4. Which is the equation for the line perpendicular to $y = -\frac{5}{3}x + 11\frac{1}{3}$ and containing $P(-2, 3)$?

   (F) $y - 2 = -\frac{3}{5}(x - 3)$ (G) $y = -\frac{5}{3}x + 4\frac{1}{3}$ (H) $y = -\frac{3}{5}x + 4\frac{1}{5}$ (I) $y = \frac{3}{5}x + 4\frac{1}{5}$

Extended Response

Show Work!

5. Graph the vertices of $ABCD$ where $A(-1, 3)$, $B(-6, -2)$, $C(-1, -7)$, and $D(4, -2)$.



   a. Explain how you know the opposite sides of $ABCD$ are parallel.

   b. Explain how you know the adjacent sides of $ABCD$ are perpendicular.

   c. What is the length of each side, to the nearest inch, if each grid space is equal to 2 in.?

   d. What kind of figure is $ABCD$?

Name_____ Class _____ Date_____

3-1 Game: Name It – Claim It

Lines and Angles

Materials

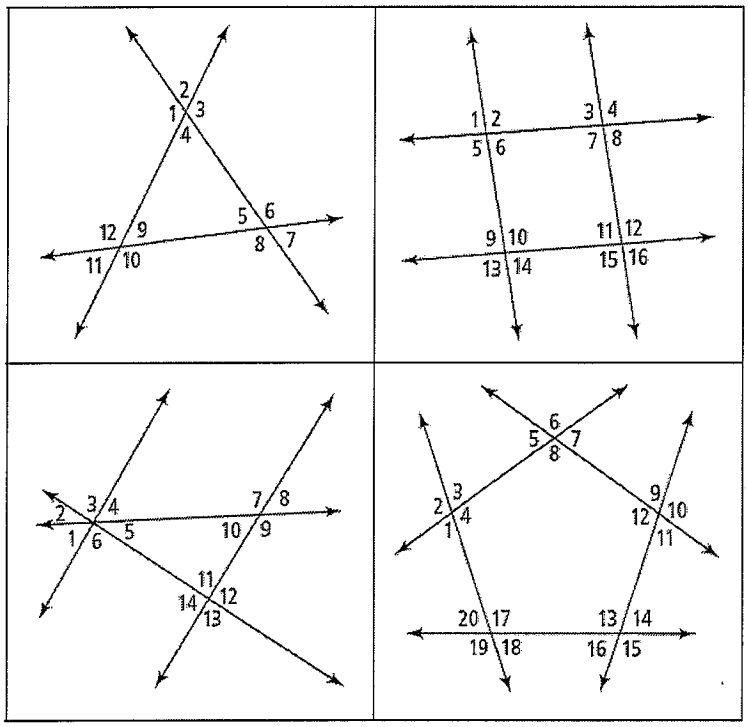
- Number cube

Setup

Your teacher will divide the class into pairs.

Game Play

Use one of the four diagrams at the right to play each round of the game. At the beginning of each round, you and your partner must each claim an angle and label it with your initials.



Take turns rolling the number cube to determine an angle relationship.

1 = alternate interior	2 = alternate exterior	3 = corresponding
4 = same-side interior	5 = vertical angles	6 = linear pair

Then, initial one angle that has the given relationship to the angle you claimed. On subsequent turns, you may start from any previously initialed angles in the angle relationship. Angles may only be claimed once, so it may not always be possible to claim an angle on your turn.

Ending the Game

The round ends when all of the angles have been claimed. The player with the most angles claimed wins the round. The player who wins the most rounds wins the game.

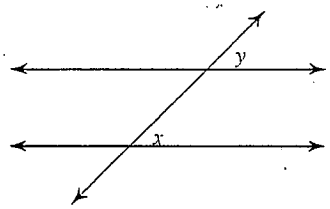
Kuta Software - Infinite Geometry Name_____

Parallel Lines and Transversals

Date_____ Period____

Identify each pair of angles as corresponding, alternate interior, alternate exterior, or same side interior.

1)



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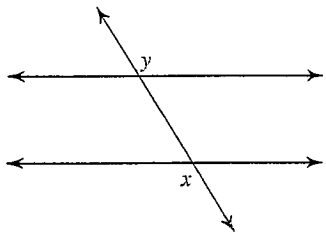

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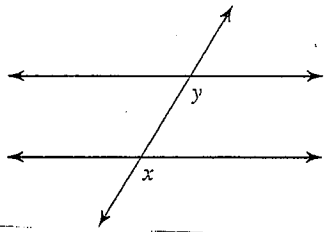

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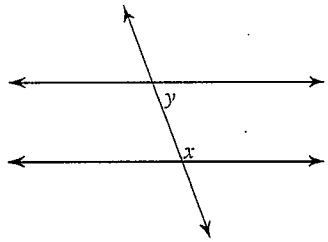

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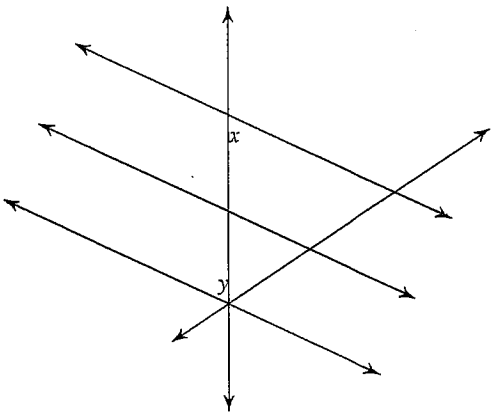

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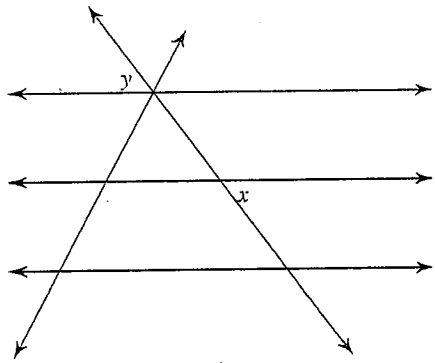
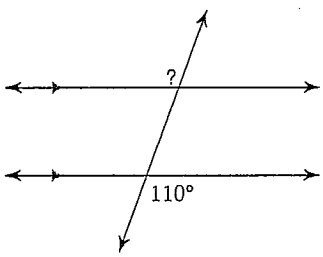


Find the measure of each angle indicated.

11)



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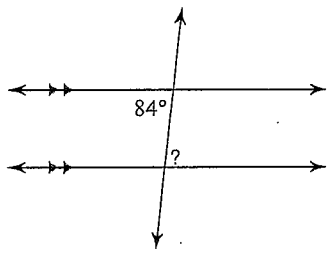

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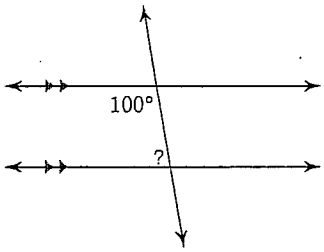

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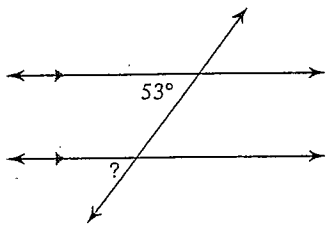


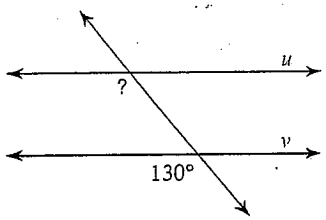
Kuta Software - Infinite Geometry Name_____

Proving Lines Parallel

Date_____ Period____

Find the measure of the indicated angle that makes lines u and v parallel. State the Theorem or Postulate.

1)



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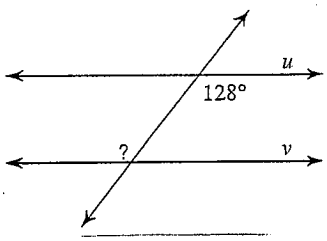

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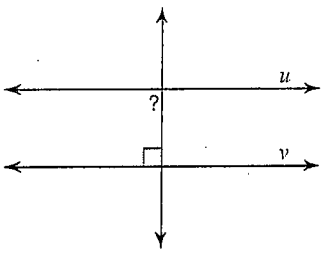

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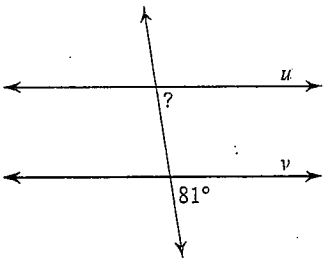

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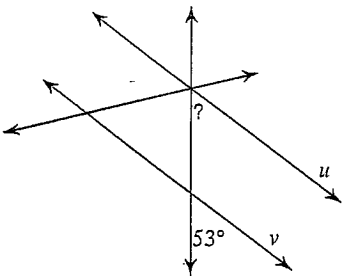
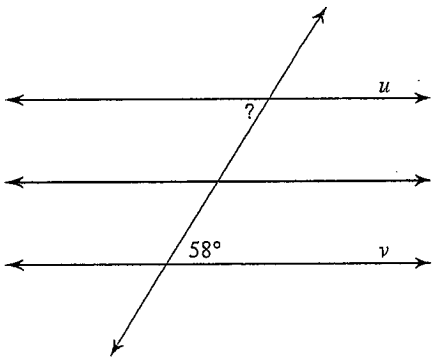
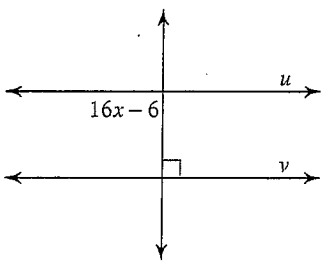


8)



Find the value of x that makes lines u and v parallel. State the Theorem or Postulate.

11)



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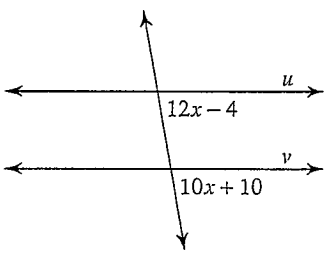

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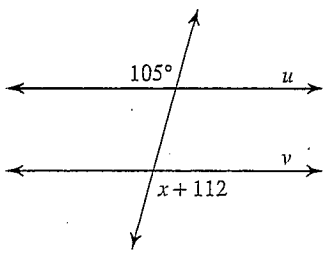

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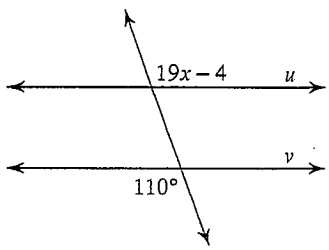
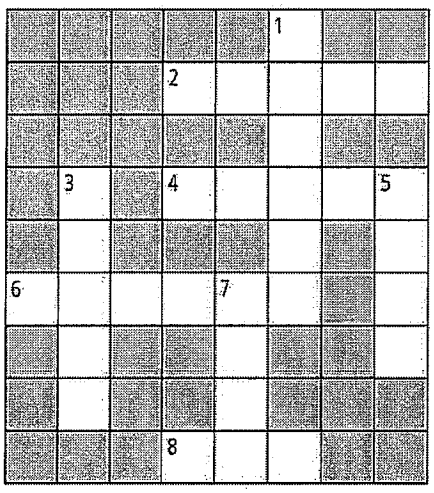


Name _____ Class _____ Date _____

3-3 Puzzle: Cross-Number

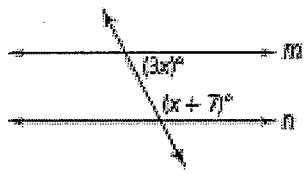
Proving Lines Parallel

Find the value of x for which $m \parallel n$. Write your answer in the cross-number puzzle below. Each digit and decimal point of your answer goes in its own box.

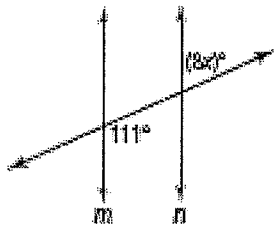


Across

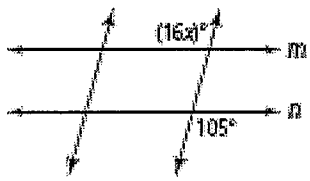
2.



4.



6.



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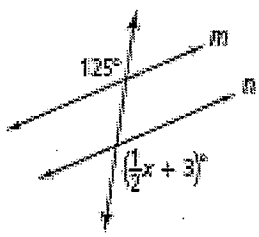
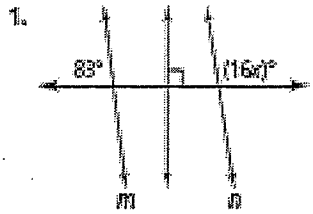
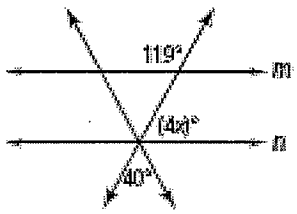


Down

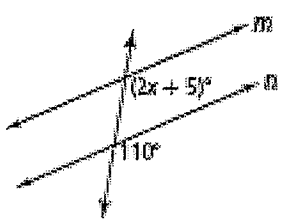
1.



3.



5.



7.

Kuta Software - Infinite Geometry

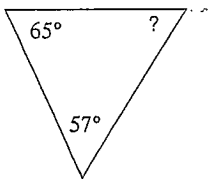
Name_____

Angles in a Triangle

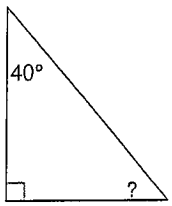
Date_____ Period____

Find the measure of each angle indicated.

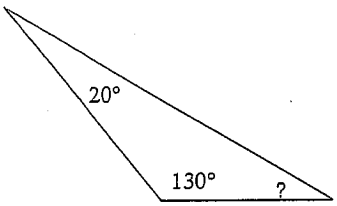
1)



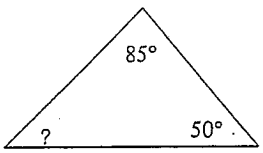
2)



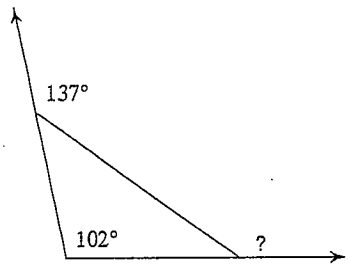
3)



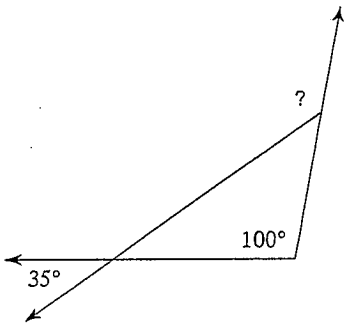
4)



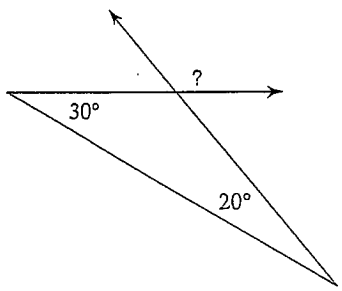
5)



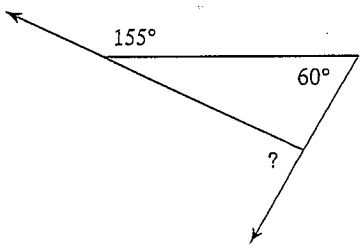
6)



7)

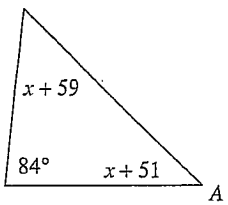


8)

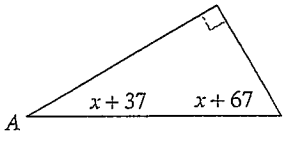


Find the measure of angle A.

21)



22)



Kuta Software - Infinite Geometry

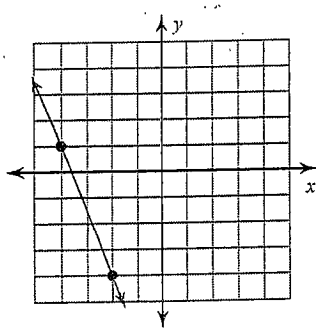
Name_____

Parallel Lines in the Coordinate Plane

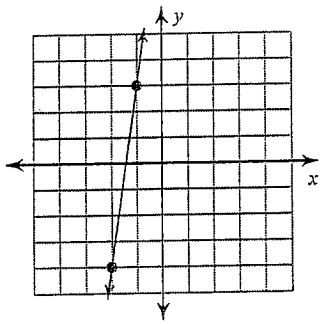
Date_____ Period____

Find the slope of each line.

1)



2)



9) $x = -1$

10) $y = \frac{3}{2}x - 3$

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

13) Slope $= -3$, y-intercept $= -1$

14) Slope $= \frac{5}{3}$, y-intercept $= -3$

Find the slope of a line parallel to each given line.

19) $y = 2x - 5$

20) $y = 2x - 4$

Find the slope of a line perpendicular to each given line.

21) $y = \frac{4}{5}x - 3$

22) $y = -\frac{8}{3}x - 4$

23) $y = -x - 2$

24) $y = -2x - 1$

Name_____
Date_____
Geometry Period _____

Parallel and Perpendicular Lines Project (Geometer's Sketchpad Activity)

You will need to create the following items in geometer's sketchpad. **Reminder: you MUST use the construct menu for a construction!!!!** All of this should be completed on one document.

- Construct a line.
- Construct a point not on the line.
- Construct a parallel line through the point. (Select the line and the point. Then, from the construct menu, choose parallel line.)
- Construct a transversal.
- Measure all 8 angles formed. (Select 3 points on the angle in this order: one ray, vertex, other ray.)
- Click on one point of the transversal line and wiggle it.
- Use the text tool to label the following types of angles (write the word twice and move each one to the correct angle space):
  - Corresponding Angles
  - Alternate Interior Angles
  - Alternate Exterior Angles
  - Same Side Interior Angles
- Use the text tool to answer the following questions on the document:
  1. What do you notice when you wiggle the transversal?

After you have made these items, save the document in the folder listed below:
Student Common Drive → mary.gruver Folder → Classes folder → Select Your Period → Share
Make sure you call it "Chapter 3 Project" followed by your last name and your partner's last name if you had one. Ex: Chapter3ProjectGruverBaldree