$\qquad$
$\qquad$ Date $\qquad$

## Chapter 1 Part A Test

Lessons 1-1 through 1-5

## Do you know HOW?

1. What is the net for the figure below?

Label the net with its dimensions.

2. Make an isometric drawing of the cube structure below.


Use the diagram at the right for Exercises 3-6.
3. What are two other names for $\overleftrightarrow{G I}$ ?
4. Name three collinear points.
5. Name two opposite rays.

6. What is another way to name plane $D$ ?

Use the diagram at the right for Exercises 7-9.
7. What is the intersection of the two planes?
8. What plane contains points $W, X$, and $Y$ ?
9. Are points $T, Z, W$, and $U$ coplanar or noncoplanar?

Use the number line at the right for Exercises 10-13. Name each of the following.

10. the point on $\overrightarrow{S Y}$ that is 3 units from $W$
11. the coordinate of the midpoint of $\overline{Q X}$
12. two points that are 2 units from $T$
13. a segment congruent to $\overline{Q T}$
$\qquad$ Class $\qquad$ Date $\qquad$
Chapter 1 Part A Test (continued)

## Lessons 1-1 through 1-5

Use the diagram at the right for Exercises 14-16.
14. What are two other names for $\angle 1$ ?
15. Algebra If $m \angle W X Z=122$, what is an expression to
 represent $m \angle W X Y$ ?
16. Classify $\angle W X Y$ and $\angle W X Z$ as acute, obtuse, straight, or right.
17. Classify the angle at the right.


Name a pair of the following types of angle pairs.
18. vertical angles
19. supplementary angles
20. adjacent angles

21. complementary angles

## Do You UNDERSTAND?

22. Compare and Contrast How are isometric drawings and nets similar? How are they different?
23. Error Analysis Point $T$ has a coordinate of $2, T R=10$, and the coordinate of $R$ is positive. Your classmate says the coordinate of the midpoint of $T R$ is 5 . What is your classmate's error?
24. Reasoning A classmate adds two more points to the figure at the right. Are all four points coplanar? Add points to the drawing to justify your answer.

$\qquad$
$\qquad$ Date $\qquad$
Chapter 1 Part B Test
Lessons 1-6 through 1-8

## Do you know HOW?

1. Construct a segment congruent to $\overline{A B}$.

2. Construct the perpendicular bisector of $\overline{A B}$.
3. Construct $\angle D E F$ congruent to $\angle Q R S$.

4. Construct the bisector of $\angle D E F$.
5. $\overrightarrow{B D}$ bisects $\angle A B C$ so that $m \angle A B D=2 y$ and $m \angle D B C=5 y-12$. What is $m \angle A B C$ ?
6. $\angle W X Y$ and $\angle Y X Z$ are supplementary angles. $m \angle W X Y=8 x+12$ and $m \angle Y X Z$ $=2 x+28$. What is $m \angle Y X Z$ ?
7. $\overline{Q R}$ has endpoints $Q(9,-2)$ and $R(3,5)$. What are the coordinates of its midpoint $X$ ?
8. The midpoint of $\overline{G H}$ is $(4,7)$. One endpoint is $H(12,-3)$. What are the coordinates of endpoint $G$ ?
9. To the nearest tenth, what is the distance between points $D(32,4)$ and $E(20,8)$ ?
$\qquad$
$\qquad$
$\qquad$
Chapter 1 Part B Test (continued)

## Lessons 1-6 through 1-8

10. What is the perimeter and the area of the figure at the right? Round to the nearest tenth.
11. To the nearest tenth, what is the perimeter and area of a rectangle with base 4.5 in . and height 3 in .?
12. To the nearest tenth, what is the circumference and area of a circle with diameter 8 cm ?

13. A rectangle has perimeter 60 m and base 21 m . What is its area?
14. Coordinate Geometry The endpoints of a diameter of a circle are $Q(4,-2)$ and $R(3,6)$. Find the area of the circle in terms of $\pi$.
15. Algebra A rectangle has a base of $x$ units. The perimeter is $(6 x+2)$ units. What is the area of the rectangle in terms of $x$ ?

## Do You UNDERSTAND?

16. Compare and Contrast How is constructing a perpendicular bisector similar to constructing an angle bisector? How is it different?
17. Error Analysis A classmate used the equation below to find the length of the line segment shown. Explain your classmate's error. Then find the actual length of the line.
$d=\sqrt{(2-7)^{2}+(-1-(-2))^{2}}$
$d=\sqrt{(-5)^{2}+(1)^{2}}$
$d=\sqrt{25+1}$
$d=\sqrt{26}$

$d \approx 5.1$
$\qquad$
$\qquad$ Date $\qquad$

## Chapter 2 Quiz 1

Lessons 2-1 through 2-3

## Do you know How?

What are the next two terms in each sequence?

1. $3,6,12,24, \ldots$
2. 

$\square$,

3. What is a counterexample for the following conjecture?

All odd numbers are prime.
4. Identify the hypothesis and the conclusion of the following statement. Then, write it as a conditional.

Residents of large cities use mass transit.
5. Write the converse, inverse, and contrapositive of the following statement. Determine the truth value of each statement.

If a figure is a square, then it is a parallelogram.
6. Write the following statements as a biconditional.

If it is summer, you will work at the pool.
If you work at the pool, then it is summer.

## Do you UNDERSTAND?

7. Reasoning A math teacher wrote 4 and 8 , the first two numbers of a sequence on the board. Name two numbers which could each be the next term in the sequence. Explain your reasoning.
8. Vocabulary What are equivalent statements? What related conditional statements are equivalent?
9. Writing What makes a statement a good definition? Give an example.
$\qquad$
$\qquad$ Date $\qquad$

## Chapter 2 Quiz 2

Lessons 2-4 through 2-6

## Do you know HOW?

If possible, make a conclusion from the given true statements. What reasoning did you use?

1. If you have a fever, you should not go to school. Mike has a fever.
2. If you multiply two even numbers, the product is an even number.

If you multiply two odd numbers, the product is an odd number.
3. If it is winter vacation, Will visits his grandmother.

If it is December, the zoo is closed.
If Will visits his grandmother, it is December.

Name the property of equality or congruence that justifies going from the first statement to the second statement.
$\begin{aligned} 4.3 a-6 & =54 \\ 3 a & =60\end{aligned}$
5. $\overline{A B} \cong \overline{C D}$
$\overline{C D} \cong \overline{A B}$
6. Find $m \angle 1, m \angle 2$, and $m \angle 3$.

7. What is the value of $x$ ?


## Do you UNDERSTAND?

8. Compare and Contrast How is the Law of Detachment similar to the Law of Syllogism? How are they different?
9. Open Ended Write an equation that can be solved using the Subtraction Property of Equality and the Division Property of Equality.
10. Reasoning Two lines intersect at a point. The vertical angles formed are supplementary. What is the measure of each of the angles? Explain.
$\qquad$
$\qquad$ Date $\qquad$

## Chapter 2 Test

## Do you know HOW?

## What are the next two terms in each sequence?

1. $95,84,73,62, \ldots$
2. 


3. What is a counterexample for the following conjecture? All quadrilaterals with four right angles are squares.
4. What are the hypothesis and the conclusion of the following statement? Write it as a conditional.

Cats are mammals.
5. What are the converse, inverse, and contrapositive of the statement Which statements are true?

If a square has $5-\mathrm{in}$. sides, then the square has area $25 \mathrm{in} .^{2}$

If possible, make a conclusion from the given true statements. What reasoning did you use?
6. All good tennis players are quick. Martina is a good tennis player.
7. If you do not study, you will not get good grades. If you do not get good grades, you will not get into a good college.
8. How can you write the following statement as two true conditionals?

A line is perpendicular to another line if and only if the intersection of the two lines forms four right angles.
9. How can you combine the following statements as a biconditional?

If today is Monday, then tomorrow is Tuesday.
If tomorrow is Tuesday, then today is Monday.
$\qquad$
$\qquad$ Date $\qquad$
10. Write the following statement as two true conditionals. Equilateral triangles are triangles in which all three angles are congruent.

Name the property of equality or congruence that justifies going from the first statement to the second statement.

$$
\begin{aligned}
& \text { 11. If } \angle D \cong \angle C \text { and } \angle E \cong \angle C \\
& \angle D \cong \angle E
\end{aligned}
$$

13. Find $m \angle 1, m \angle 2$, and $m \angle 3$.


$$
\text { 12. } \begin{aligned}
4 d & =16 \\
d & =4
\end{aligned}
$$

14. What is the value of $x$ ?


## Do you UNDERSTAND?

15. Vocabulary Explain how the terms conjecture and inductive reasoning apply to extending patterns.
16. Open-Ended Write a true statement as a conditional. Then write the converse, inverse, and contrapositive of the statement. Which statements are true?
17. Reasoning Is the following a good definition? Explain. A bird is an animal that flies.
18. Error Analysis What is the error in the reasoning below? Animals with webbed feet cannot run fast. A sloth cannot run fast. A sloth has webbed feet.
19. Reasoning Complete the following statement. Describe the reasoning that supports your answer.
If a red marble hits a blue marble, and the blue marble hits a green marble, and the green marble hits a yellow marble, then the $\qquad$ marble caused the yellow marble to move.
$\qquad$
$\qquad$ Date $\qquad$

## Chapter 3 Part A Test

Lessons 3-1 through 3-5

## Do you know HOW?

Identify the following in the diagram at the right.

1. two pairs of parallel segments
2. two pairs of parallel planes

3. two pairs of skew segments

Use the diagram at the right for Exercises 4-7.
Name one pair of each angle type.
4. alternate interior angles

5. same-side interior angles
6. corresponding angles
7. alternate exterior angles

Use the diagram at the right for Exercises 8-11.
8. Identify four pairs of congruent angles (not including vertical angle pairs).
9. Identify two pairs of supplementary angles
 (not including linear pairs).
10. If $m \angle 4=125$, what is $m \angle 7$ ?
11. If $m \angle 8=125$ and $m \angle 1=5 x$, what is the value of $x$ ?
$\qquad$
$\qquad$ Date $\qquad$
Chapter 3 Part A Test (continued)

## Lessons 3-1 through 3-5

State the theorem or postulate that proves $\boldsymbol{a} \| \boldsymbol{b}$.
12.

13.

14. What is the value of $y$ for which $a \| b$ in Exercise 13?
15. What conclusion can you make about lines $x$ and $z$ based on the diagram at the right? Explain.


Find the measure of the third angle of a triangle, given the measure of two angles.
16. 62 and 24
17. 75 and 37
18. 19 and 45

In a triangle, $\angle 1$ is an exterior angle and $\angle 2$ and $\angle 3$ are its remote interior angles. Find the missing angle measure.
19. $m \angle 2=37$ and $m \angle 3=99$
20. $m \angle 1=98$ and $m \angle 2=55$

## Do you UNDERSTAND?

21. Compare and Contrast How are the Same-Side Interior Angles Theorem and the Alternate Interior Angles Theorem alike? How are they different?
22. Reasoning What type of angle pairs can be used to prove that a quadrilateral is a parallelogram? Explain.
23. Writing Explain how the Parallel Postulate can be applied to prove the Triangle Angle-Sum Theorem.
$\qquad$
$\qquad$ Date $\qquad$

## Chapter 3 Part B Test

Lessons 3-6 through 3-8

## Do you know HOW?

1. Draw a line $m$ and a point $Q$ not on the line. Construct the line through $Q$ parallel to line $m$.
2. Construct quadrilateral $W X Y Z$ with $\overleftrightarrow{W X} \| \overleftrightarrow{Y Z}$ so that $W X$ $=f$ and $Y Z=3 f$.
3. Draw $\overleftrightarrow{M N}$ and a point $T$ on the line. Construct the line perpendicular to $\overleftrightarrow{M N}$ at point $T$.
4. Draw a line $h$ and a point $R$ not on the line. Construct the line perpendicular to line $h$ through point $R$.

For Exercises 5 and 6, find the slope of the line passing through the given points.
5.

6. $(7,4)$ and $(5,12)$
7. What is an equation of a line with slope -2 and $y$-intercept 8 ?
8. What is an equation of a line passing through $(-10,4)$ and $(-6,2)$ ?
$\qquad$
$\qquad$ Date $\qquad$

## Chapter 3 Part B Test (continued)

## Lessons 3-6 through 3-8

$\overleftrightarrow{A B}$ contains points $A$ and $B . \overleftrightarrow{C D}$ contains points $C$ and $D$. Are $\overleftrightarrow{A B}$ and $\overleftrightarrow{C D}$ parallel, perpendicular, or neither? Explain.
9. $A(3,-8), B(0,2), C(5,6), D(2,3)$
10. $A(4,-9), B(-2,-1), C(12,-7), D(8,-10)$
11. $A(-3,2), B(5,6), C(7,6), D(-5,0)$
12. What is an equation for the line parallel to $y=2 x+3$ that contains
$(4,6)$ ?
13. What is an equation for the line perpendicular to $y=3 x-2$ that contains $(-6,5)$ ?

## Do you UNDERSTAND?

14. Write a step-by-step explanation of how to construct a line parallel to line $p$ through a point $E$ not on line $p$.
15. Error Analysis The box at the right shows how a classmate found the equation of the line that passes through points $(4,-9)$ and $(1$, -3 ). Describe your classmate's error. Then find the correct equation.

$$
\begin{aligned}
M & =\frac{13 \curvearrowleft \cdot 9}{1 \cdot 4}=12 \\
-9 & =-2(1)+6 \\
b & =-7
\end{aligned}
$$

$$
\text { Equation: } y=-2 x-7
$$

16. Open-Ended Write an equation for a line in slope-intercept form.
a. Choose a point $(x, y)$. Write an equation for the line perpendicular to your first line that contains point $(x, y)$.
b. Choose a point $(s, t)$. Write an equation for the line parallel to your first line that contains point ( $s, t$ ).
$\qquad$
$\qquad$ Date $\qquad$

## Chapter 4 Part A Test

Lessons 4-1 through 4-3

## Do you know HOW?

Complete the following statements.

1. Given: $\triangle F G H \cong \triangle W A X$
a. $\overline{G H} \cong$ ?
b. $\angle W \cong$ ?
2. Given: $B I K E \cong P A T H$
a. $\angle T \cong$ ?
b. $T H P A \cong$ ?
3. In $\triangle H O T$ and $\triangle S U N, \angle O \cong \angle U$ and $\angle T \cong \angle N$.
a. What is the relationship between $\angle S$ and $\angle H$ ?
b. If $m \angle O=27$ and $m \angle T=63$, what is $m \angle S$ ?
4. In $\Delta R U G$, name the angle that is included between the given sides.
a. $\overline{G R}$ and $\overline{R U}$
b. $\overline{U G}$ and $\overline{G R}$
5. In $\triangle P A D$, the given angle is included between which two sides?
a. $\angle P$
b. $\angle D$

Use the diagram at the right. Tell why each statement is true.
6. $m \angle A D B=90$
7. $\overline{B D} \cong \overline{B D}$
8. $\triangle A D B \cong \triangle C D B$

9. Constructions Construct $\triangle J K L$ congruent to $\triangle F G H$ using SAS.

$\qquad$ Class $\qquad$ Date $\qquad$
Chapter 4 Part A Test (continued)

## Lessons 4-1 through 4-3

10. In $\triangle A B C$, which side is included between $\angle B$ and $\angle C$ ?
11. In $\triangle X Y Z, \overline{Y Z}$ is included between which two angles?

State the postulate or theorem you can use to prove each pair of triangles congruent. If the triangles cannot be proven congruent, write not enough information.
12.


13.


Determine what other information you need to prove the two triangles congruent. Then write the congruence statement and name the postulate or theorem you would use.
14.

15.


## Do you UNDERSTAND?

16. Reasoning If two triangles are congruent, all their corresponding parts are congruent. Write the converse of this statement. Is the converse true? Explain.
17. Reasoning The Third Angles Theorem can be applied to triangles that are not congruent. Explain.
18. Error Analysis Your classmate says the triangles at the right are not congruent by SSS. She explains that congruent sides do not correspond. Explain the error in her reasoning.

$\qquad$
$\qquad$ Date $\qquad$

## Chapter 4 Part B Test

Lessons 4-4 through 4-7

## Do you know HOW?

State the postulate or theorem you can use to prove each pair of triangles congruent. If the triangles cannot be proven congruent, write not enough information.

1. $A$

2. 


3. What is $m \angle X$ ?
a.

b.

4. What is the value of $x$ ?
a.

b.


Write a congruence statement for each pair of triangles. If the triangles cannot be proven congruent, write not enough information.
5.

6.



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$\qquad$
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Chapter 4 Part B Test (continued)
Lessons 4-4 through 4-7

Write a congruence statement for each pair of triangles. If the triangles cannot be proven congruent, write not enough information.
7.

8.



Identify any common angles or sides for the indicated triangles.
9. $\triangle A D C$ and $\triangle B D C$


Separate and redraw the indicated triangles.
11.

10. $\triangle F H J$ and $\triangle G K J$

12.


## Do you UNDERSTAND?

13. Error Analysis Your friend claims isosceles triangles are congruent if two corresponding sides are congruent. He explains there are only two different lengths of sides, so the third side must always be congruent. Explain the error in his reasoning.
14. Compare and Contrast How can you use the Isosceles Triangle Theorem to prove that all equilateral triangles are also equiangular?
