

15. The weather forecaster announces that there is a 30% chance that it will snow. What is the probability that it will not snow? _____
16. A referee starts a football game by tossing one fair coin. What is the probability that the team making the call wins the toss? _____
17. A hockey team has 12 wins, 5 losses, and 3 ties. Write the relative frequency of the team not winning a game as a percent. _____
18. You toss a fair coin 5 times and get 5 consecutive "heads."
- a. What is the probability that you will get a "heads" on your next toss? _____
- b. Justify your answer.

In 19–22, a beanbag is randomly thrown onto the board shown at right. Write the probability, as a percent, that the beanbag will land on a square containing the following:

6	18	10	24
23	G	A	2
14	E	M	19
29	9	13	28

19. a letter _____
20. a multiple of 4 _____
21. a prime number _____
22. an even number _____

4-1A Lesson Master

Questions on SPUR Objectives
See pages 271–275 for objectives.

PROPERTIES Objective C

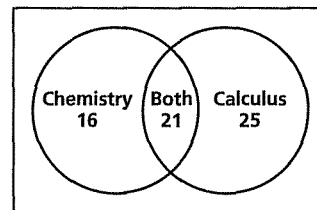
In 1–5, fill in the blanks with *always*, *sometimes but not always*, or *never* to form a true statement.

1. A rectangle is _____ a square.
2. Whole numbers are _____ integers.
3. Integers are _____ whole numbers.
4. Rhombuses are _____ rectangles.
5. Intersecting lines are _____ perpendicular.

In 6–10, determine whether the statement is *true* or *false*. If the statement is false, give a counterexample.

6. For all integers n , $2n + 1$ is odd. _____
7. All decimals are rational numbers. _____
8. All multiples of 9 are also multiples of 6. _____
9. The product of any two odd numbers is even. _____
10. All factors of 4 are factors of 16. _____

In 11 and 12, use the Venn diagram at the right that shows how students are enrolled in chemistry and calculus classes in one school.

**USES** Objective I

11. What is the total number of students enrolled in chemistry, calculus, or both? _____

REPRESENTATIONS Objective K

12. Is a chemistry student more likely to be taking only chemistry or taking both chemistry and calculus? Explain your answer using the Venn diagram.

4-1B Lesson Master**PROPERTIES**

Objective C: Identify statements as *always*, *sometimes but not always*, or *never true*.

In 1–12, fill in the blanks with *always*, *sometimes but not always*, or *never* to form a true statement.

1. People _____ turn younger as they age.
2. Farmers _____ grow more soybeans than corn.
3. Penguins _____ live in a desert.
4. Three-year-old boys are _____ taller than three-year-old girls.
5. The Empire State Building is _____ taller than the White House.
6. CDs _____ play for 1 hour.
7. Cell phones _____ have cameras.
8. States are _____ surrounded by land.
9. The sun _____ sets in the west.
10. Playgrounds _____ have swing sets.
11. President George Washington _____ watched television.
12. Students _____ love mathematics.

In 13–18, determine whether the statement is *true* or *false*. If the statement is false, give a counterexample.

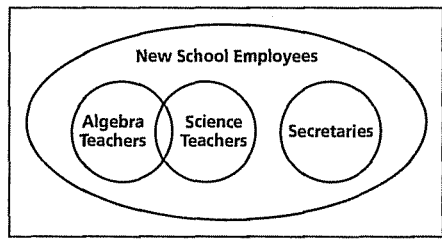
13. All salmon are fish. _____
14. All 4-legged animals are cats. _____
15. All multiples of 3 are also multiples of 5. _____
16. All factors of 4 are also factors of 8. _____
17. All polygons are squares. _____
18. All squares are quadrilaterals. _____

USES Objective I: Apply hierarchies and Venn diagrams to real-world situations.

Consider the Venn diagram below for new school employees.

In 19–22, true or false.

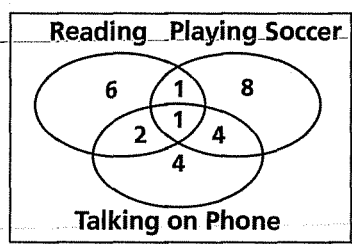
- 19. All new science teachers are new Algebra teachers. _____
- 20. Some new Algebra teachers are new science teachers. _____
- 21. No new Algebra teachers are new secretaries. _____
- 22. Some new employees are new science teachers. _____



REPRESENTATIONS Objective K: Use Venn diagrams and hierarchies to describe relationships among sets.

- 23. Draw a Venn diagram representing this situation: twelve students in all went to the zoo, nineteen students in all went to the museum, but seven students went to both.
- 24. Draw a Venn diagram representing the set of multiples of 2 and the set of multiples of 6.
- 25. The diagram at the right shows how a group of seventh graders spent their free time one afternoon after school.

- a. How many students spent time reading? _____
- b. How many students played soccer and also talked on the phone? _____
- c. How many students did all three activities? _____
- d. How many students are in the group? _____



4-2A Lesson Master**Questions on SPUR Objectives**
See pages 271–275 for objectives.**PROPERTIES** Objective D

In 1–4, give the additive inverse of each number.

1. 79 _____ 2. -13.7 _____ 3. $\frac{5}{7}$ _____ 4. $-v$ _____

In 5 and 6, an instance of a property is given. a. Describe the property using variables. b. Name the property.

5. $0 = -\sqrt{52} + \sqrt{52}$

6. $-(-0.625) = 0.625$

a. _____

a. _____

b. _____

b. _____

In 7 and 8, find a value of the variable that makes the equation true.

7. $-(-(-b)) = \frac{71}{9}$

8. $6.02 \times 10^{23} + m = 6.02 \times 10^{23}$

In 9–12, evaluate the expression where $a = 5$ and $b = -3$.

9. $-b + a$ _____

10. $b + b + a$ _____

11. $a + -b + b - a$ _____

12. $0 + b$ _____

In 13–16, simplify.

13. $-(-r)$ _____

14. $-(-\frac{13}{21})$ _____

15. $-(-(-(-(-12))))$ _____

16. $-(-(-(-(\frac{s}{3}))))$ _____

17. Describe a real situation that illustrates $4.5 + -4.5 = 0$.

18. Describe a real situation that illustrates $128 + 0 = 128$.

4-2B Lesson Master**PROPERTIES**

Objective D: Apply the following properties: Additive Identity
Property of Zero, Property of Opposites, and
Opposite-of Opposites Property.

In 1-6, give the additive inverse of the number.

1. 7.4 _____

2. -34 _____

3. $\frac{4}{-5}$ _____

4. s _____

5. $-3r$ _____

6. $a + b$ _____

In 7-18, perform the additions.

7. $0 + 19.0057$ _____

8. $-67 + 67$ _____

9. $-581 + x + 581$ _____

10. $(-9 + 4) + (9 + -4)$ _____

11. $-\frac{13}{15} + \frac{13}{15}$ _____

12. $0 + 88.76 + -88.76$ _____

13. $-\frac{7}{12} + 0 + \frac{7}{12} + -18$ _____

14. $-b + e + -e + e + b$ _____

15. $-m + 0 + m$ _____

16. $-0.75 + 0.25 + 0.75$ _____

17. $-(-18) + 22$ _____

18. $-\frac{18}{25} + \frac{17}{3} + 0 + -\frac{17}{3}$ _____

In 19-24, simplify.

19. $-(-15)$ _____

20. $-(-7 + 10)$ _____

21. $-(-(-(-(-55))))$ _____

22. $-(-(-33))$ _____

23. $-(-(-12 + -6))$ _____

24. $-(-(-(-u)))$ _____

In 25-32, evaluate the expression when $s = 3$ and $t = -7$.

25. $-s$ _____

26. $-t$ _____

27. $-14 + -s$ _____

28. $-t + -7$ _____

29. $-t + -(-t)$ _____

30. $s + -t$ _____

31. $-s + t$ _____

32. $s + -t + -s + t$ _____

In 33-36, find a value of the variable that makes the equation true.

33. $0 + y = 7$ _____

34. $-(-r) + 3.5 = 0$ _____

35. $-8 + d = -8$ _____

36. $4 - p = 0$ _____

In 37–40, an instance of a property is given. a. Describe the property using variables. b. Name the property.

37. $-\frac{7}{8} + \frac{7}{8} = 0$

a. _____

b. _____

38. $0 + -44.093 = -44.093$

a. _____

b. _____

39. $0 = 22\frac{1}{2} + -22\frac{1}{2}$

a. _____

b. _____

40. $-(-19)$

a. _____

b. _____

In 41 and 42, identify the property of addition that is illustrated.

41. Walk eight miles east and then walk eight miles west, and you will be back where you started.

42. You owe your friend \$5. You were not able to pay back any money today. You still owe her \$5.

43. Consider
- $-n$
- . Is
- $-n$
- positive, negative, or zero? Explain.

4-3A Lesson MasterQuestions on SPUR Objectives
See pages 271–275 for objectives.**PROPERTIES** Objective E

In 1 and 2, write an if-then statement with the same meaning as the given statement. Then write its converse and state if the converse is true.

1. Quadrupeds are animals with four legs. _____
-
- _____
-
- _____

2. A square is a rectangle. _____
-
- _____
-
- _____

In 3 and 4, identify the hypothesis and conclusion of the statement.

3. If wishes were horses, then beggars would ride.

Hypothesis: _____

Conclusion: _____

4. If you can't stand the heat, get out of the kitchen.

Hypothesis: _____

Conclusion: _____

In 5 and 6, determine whether the if-then statement is true.

If the statement is false, provide a counterexample.

5. If
- n
- is a natural number, then the expression
- $(2n + 1)^2$
- is even. _____

6. If
- n
- is a natural number, then the expression
- $(2n)^2 + 1$
- is odd. _____

7. Given the statement: If a number is a multiple of 1,000, then its units digit is 0.

a. Draw a Venn diagram for the statement. _____

b. State the converse. _____
_____c. Is the converse true? If not, give
2 counterexamples. _____

Name _____

4-3B Lesson Master

PROPERTIES

Objective E: Write if-then statements and their converses.

In 1 and 2, write an if-then statement with the same meaning as the given statement and state whether it is true, sometimes true, or never true. Then write its converse and state whether the converse is true, sometimes true, or never true.

1. California is on the Pacific coast.

If-then statement: _____

Converse: _____

2. All triangles have 3 sides.

If-then statement: _____

Converse: _____

In 3 and 4, identify the hypothesis and conclusion of the statement.

3. If it's after rush hour, the highway is not crowded.

Hypothesis: _____

Conclusion: _____

4. When $x < 5$, $x < 6$.

Hypothesis: _____

Conclusion: _____

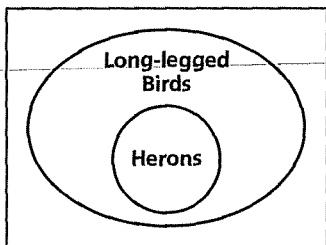
In 5 and 6, determine whether or not the statement is true. Draw a Venn diagram to illustrate.

5. All multiples of 5 are multiples of 10.

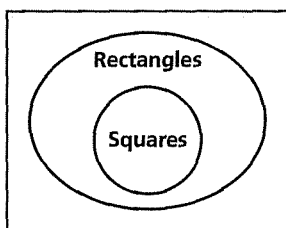
6. If a polygon is a rectangle, it has 4 right angles.

In 7 and 8, use the Venn diagram to write a true if-then statement.

7.



8.



9. Write a conclusion for a statement whose hypothesis is $x < 5.5$. _____

10. Write a hypothesis for a statement whose conclusion is $x < 5.5$. _____

In 11 and 12, change the hypothesis to make a true statement.

11. If a vehicle is a tricycle, it has 2 wheels. _____

12. If a number is a multiple of 2, then it is a multiple of 3. _____

In 13 and 14, change the conclusion to make a true statement.

13. If my pet is a dog, then my pet purrs. _____

14. If $x = -4.3$, then $x = 0$. _____

15. Provide two counterexamples that show that the statement "All integers are perfect squares" is not always true. _____

REVIEW Lesson 2-5, Objective I

In 16–18, given the following values for the lengths of sides of a triangle, is the triangle a right triangle?

16. Sides 32, 35, 40 _____

17. Sides 15, 112, 113 _____

18. Sides 32, 60, 68 _____

4-4A Lesson Master

Questions on SPUR Objectives
See pages 271–275 for objectives.

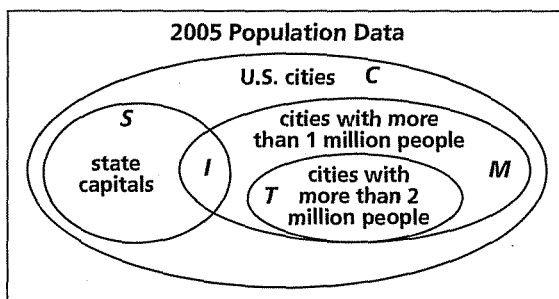
SKILLS Objective A

In 1–3, let $A = \{-5, -3, 0, 2, 6, 7, 9\}$, $B = \{-6, -3, 0, 10\}$, and $C = \{-4, -1, 7, 11\}$.

- Find $A \cup B$. _____
- Find $A \cap B$. _____
- Find $(A \cup B) \cap C$. _____

USES Objective I

In 4–6, use the Venn diagram at the right.



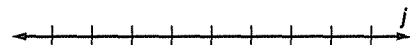
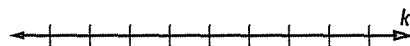
- True or false.* In 2005, there were no state capitals with more than 2 million people.

- Which sets in the diagram include Atlanta, the capital of Georgia, which had a 2005 population of 470,688? _____
- Which sets include Los Angeles, a city with almost 4 million people? _____

REPRESENTATIONS Objective J

In 7 and 8, graph the set.

- The set of all numbers k such that $k \leq -2$ or $k > 3.3$.
- The set of all numbers j such that $j \geq -\frac{2}{3}$ and $j \geq 5$.



REPRESENTATIONS Objective K

In 9–11, let W = the set of multiples of 3, X = the set of multiples of 5, Y = the set of multiples of 9, R = the set of multiples of 15, and S = the set of multiples of 45.

- Into which sets would the number 135 be placed? _____
- Which sets include all of the members of set R ? _____
- Which sets exclude some of the members of set R ? _____

Name _____

4-4B Lesson Master

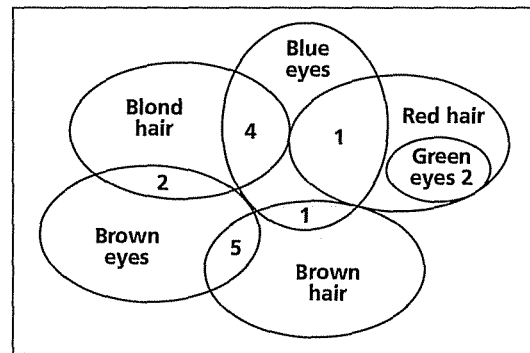
SKILLS Objective A: Determine the union and intersection of sets.

In 1–5, $P = \{a, b, c, d, e\}$, $Q = \{c, d, e, f, g\}$, and $R = \{a, e, i, o, u\}$

1. Find $P \cup Q$. _____
2. Find $Q \cap R$. _____
3. Find $(P \cap R) \cup Q$. _____
4. Find $P \cap (R \cup Q)$. _____
5. Find $P \cup Q \cap R$. _____

USES Objective I: Apply hierarchies and Venn diagrams to real-world situations.

In 6–13, use the Venn diagram at the right, describing the hair and eye colors of all the first cousins in a family.



6. How many cousins are there? _____
7. How many have red hair? _____
8. How many have blond hair and brown eyes? _____
9. How many have blond hair or brown eyes? _____
10. How many have brown hair and green eyes? _____
11. How many have neither brown hair nor brown eyes? _____
12. What is the most common combination of hair and eyes in the diagram?

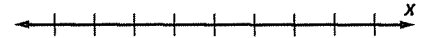
13. Use the diagram to make an if-then statement about red hair and green eyes.

REPRESENTATIONS

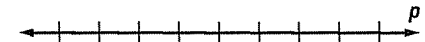
Objective J: Describe unions and intersections of inequalities geometrically.

In 14–20, graph the set.

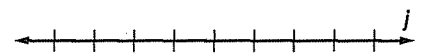
14. The set of all numbers x such that $x > -2$ and $x > 4$.



15. The set of all numbers p such that $p \geq -\frac{2}{3}$ and $p < 4$.



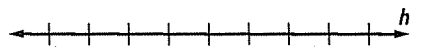
16. The set of all numbers j such that $j \leq 4$ and $j > 7$.



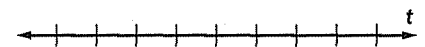
17. The set of all numbers b such that $b \leq -1$ and $b \leq 4$.



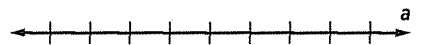
18. The set of all numbers h such that $h < -2$ or $h > 2$.



19. The set of all numbers t such that $t > -2$ and $t < 4$.



20. The set of all numbers a such that $a > -2$ or $a < 4$.

**REPRESENTATIONS**

Objective K: Use Venn diagrams and hierarchies to describe relationships among sets.

21. a. Let A = the set of multiples of 4, B = the set of multiples of 5, and C = the set of multiples of 6. Make a Venn diagram relating sets A , B , and C .

b. Which sets include 35? _____

c. Which sets include 117? _____

d. Which sets include 120? _____

e. Describe the members of $A \cap B$.

f. Describe the members of $A \cup (B \cap C)$.

4-5A Lesson Master

Questions on SPUR Objectives
See pages 271–275 for objectives.

SKILLS Objective B

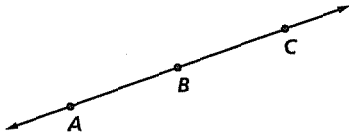
In 1–3, draw a figure to represent the following symbols.

1. \overleftrightarrow{RS}

2. \overrightarrow{KM}

3. $\overline{JK} \cap \overline{LM} = \emptyset$

4. Give all possible names of the figure.

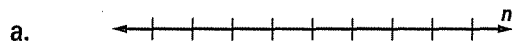


5. Draw two line segments that intersect in a point.

REPRESENTATIONS Objective J

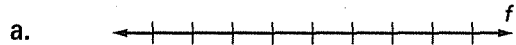
In 6–9, a. graph the solutions to the inequalities and b. describe the solution set geometrically.

6. The set of all numbers n such that $-1\frac{4}{7} \leq n \leq 0$.



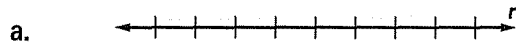
b. _____

7. The set of all numbers f such that $f \leq -0.\overline{3}$ or $f \geq 5$.



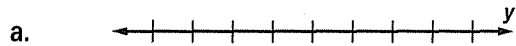
b. _____

8. The set of all numbers r such that $r \geq 2$ or $r \leq 3$.



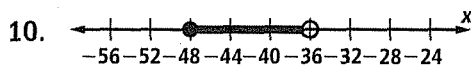
b. _____

9. The set of all numbers $y \geq -17.8$ and $y \geq 15$.

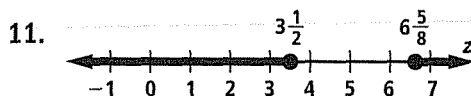


b. _____

In 10 and 11, complete the following inequality based on the graph below.



The set of all numbers x such that _____



The set of all numbers z such that _____

4-5B Lesson Master

SKILLS Objective B: Draw and identify basic figures of geometry and polygons.

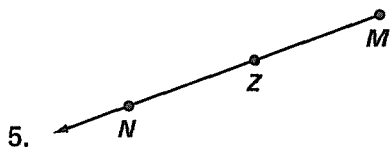
In 1-3, draw a figure to represent the following symbols.

1. \vec{AB}

2. \overleftrightarrow{DR}

3. \overline{PY}

In 4 and 5, name each figure in two ways.



In 6-8, draw a figure that matches each condition.

6. $\vec{RS} \cap \overline{MN} = S$

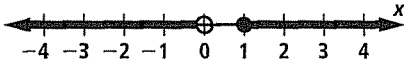
7. \overline{AB} and \overline{CD} intersect in a point, P .

8. \overline{EF} and \overline{GH} intersect in the empty set.

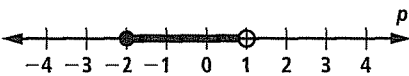
REPRESENTATIONS

Objective J: Describe unions and intersections of inequalities geometrically.

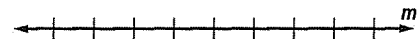
9. What inequality is represented by this graph?



10. What inequality is represented by this graph?

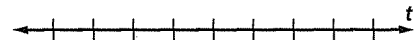


11. a. Graph the solution set of
- $-5.5 < m < 2$
- .



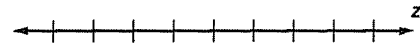
- b. Describe the solution set.

12. a. Graph the solution set of
- $t < -2$
- or
- $t > 0$
- .



- b. Describe the solution set.

13. a. Graph the solution set of
- $z \geq -3.5$
- and
- $z > 0.5$
- .



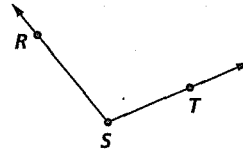
- b. Describe the solution set.

4-6A Lesson Master

Questions on SPUR Objectives
See pages 271–275 for objectives.

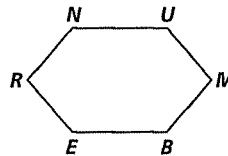
SKILLS Objective B

1. Refer to the figure at the right.



- Name the vertex.
- Name the sides of the angle.
- Name the angle in three ways.

2. Use the figure at the right.



- Classify the figure by the number of sides.
- Name the vertices.
- Name the sides of the figure.
- Name the figure in four ways.

3. Draw four non-collinear points.

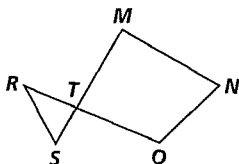
PROPERTIES Objective C

In 4–7, true or false.

- Every angle is the union of two rays.
- Every angle has a vertex.
- A straight angle is a line with a measure of zero degrees.
- Connected segments always make polygons.

PROPERTIES Objective F




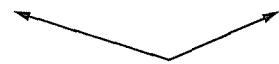

- Draw a figure that is the union of four segments but is not a quadrilateral.
- Explain why the figure below is not a polygon.



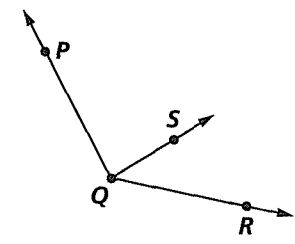
4-6B Lesson Master

SKILLS Objective B: Draw and identify basic figures of geometry and polygons.

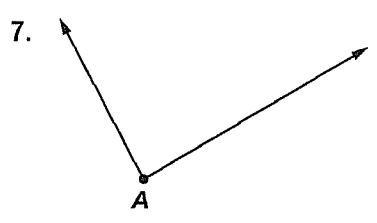
In 1-5, match the description with the drawing. Use each letter only once.

- | | | |
|----------|---|------------------|
| 1. _____ |  | a. acute angle |
| 2. _____ |  | b. right angle |
| 3. _____ |  | c. obtuse angle |
| 4. _____ |  | d. triangle |
| 5. _____ |  | e. quadrilateral |

6. Name the angles in this figure in all possible ways.

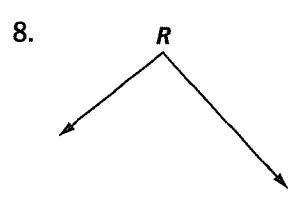


In 7-9, a. measure the angle with a protractor, then b. determine if it is acute, obtuse, or right.



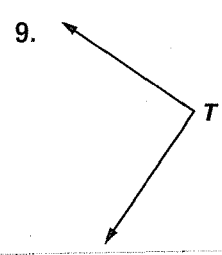
a. $m\angle A =$ _____

b. _____



a. $m\angle R =$ _____

b. _____



a. $m\angle T =$ _____

b. _____

10. Draw a hexagon with exactly 2 sides the same length.

PROPERTIES

Objective C: Identify statements as *always*, *sometimes but not always*, or *never true*.

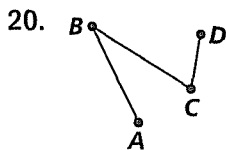
In 11–19, identify the statements as *always*, *sometimes but not always*, or *never true*.

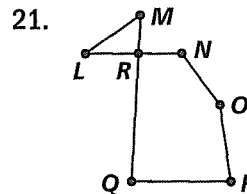
11. There are 8 different ways to name a quadrilateral. _____
12. A heptagon has 8 sides. _____
13. Connecting 4 points yields a quadrilateral. _____
14. $KLMNOP$ and $NOPLMK$ are names for the same hexagon. _____
15. The measure of an acute angle is greater than the measure of an obtuse angle. _____
16. If 3 points are collinear, they lie on a straight angle. _____
17. ABC and BAC are names for the same triangle. _____
18. An octagon has 8 angles. _____
19. A pentagon has 5 vertices. _____

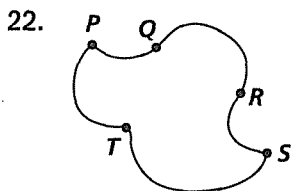
PROPERTIES

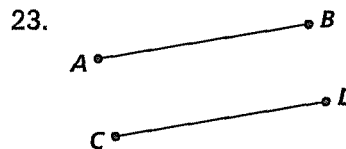
Objective F: Apply the definition of polygon to various figures.

In 20–23, describe why the figures are not polygons.









Name _____

4-7A Lesson Master

Questions on SPUR Objectives
See pages 271–275 for objectives.

PROPERTIES Objective G

In 1 and 2, use the given definition of the italicized term to write a true if-then statement and its true converse.

1. An *additive inverse* is a number whose sum with a given number is 0.

Converse: _____

2. A *prime number* is a positive integer with no factors other than 1 and itself.

Converse: _____

In 3–5, use the given true if-then statement to form a good definition.

3. If a set contains the elements that are in either set A or set B , then the set is the union of A and B .

4. If a side is the longest side of a right triangle, then it is the hypotenuse.

5. If a figure is a quadrilateral with at least one pair of parallel sides, then it is a trapezoid.

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Name _____

4-7B Lesson Master

PROPERTIES Objective G: Apply the properties of a good definition.

In 1–5, use the given definition of the italicized term to write a true if-then statement and its true converse.

1. An *elephant* is an animal with a trunk.

Converse: _____

2. A *perfect square* is a number with an integer as a square root.

Converse: _____

3. A *library* is an organization that lends books.

Converse: _____

4. A *triangle* is a polygon with 3 sides.

Converse: _____

5. A *volcano* is a mountain formed by erupting magma.

Converse: _____

In 6–13, use the given true if-then statement to form a good definition.

6. If a number ends in 0, 2, 4, 6, or 8, then it is even.

7. If a polygon has 6 sides, then it is a hexagon.

8. If the sum of the measures of two angles is 90° , then the angles are complementary.

9. If a “big cat” is black, then it is a panther.

10. If an equation or inequality includes at least one variable, then it is an open sentence.

11. If an athletic competition has ten events, then it is a decathlon.

12. If a person is President of the United States, then the person is Chief of the Armed Forces.

13. If a planet has rings and is the sixth planet from the sun, then the planet is Saturn.

4-8A Lesson Master

Questions on SPUR Objectives
See pages 271–275 for objectives.

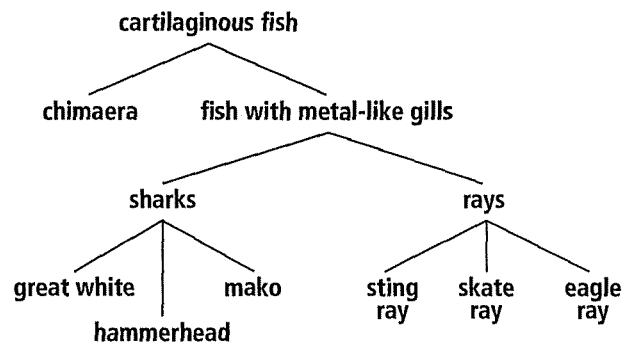
PROPERTIES Objective C

In 1–3, fill in the blank with *always*, *sometimes but not always*, or *never*.

1. A trapezoid is _____ a rhombus.
2. A square is _____ a quadrilateral.
3. A rectangle is _____ a pentagon.
4. *True or false.* A parallelogram can be either a rectangle or a square. _____

USES Objective I

In 5–9, use the hierarchy at the right to determine if the statement is *always true*, *sometimes but not always true*, or *never true*.



5. A fish with metal-like gills is a sting ray. _____
6. A hammerhead shark is a cartilaginous fish. _____
7. A skate ray is a type of chimaera. _____
8. A cartilaginous fish is a mako. _____
9. A ray is a fish with metal-like gills. _____

REPRESENTATIONS Objective K

10. Draw a hierarchy of the following terms:
polygon, triangle, square, quadrilateral,
rectangle, trapezoid.

4-8B Lesson Master

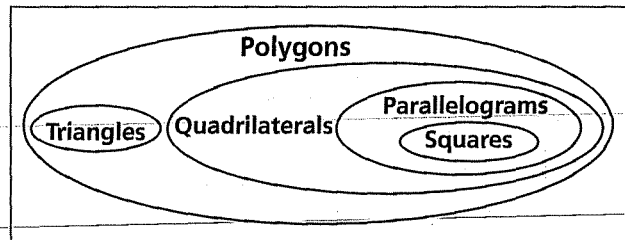
PROPERTIES Objective C: Identify statements as *always*, *sometimes but not always*, or *never true*.

In 1–12, fill in the blank with *always*, *sometimes but not always*, or *never*.

1. A rectangle is _____ a parallelogram.
2. The supplement of a 50° angle _____ has a measure of 130° .
3. A square is _____ a rhombus.
4. A 2-year-old is _____ an adult.
5. 66 is _____ an even number.
6. A polygon _____ has 7 sides.
7. A rectangle is _____ a square.
8. A 5-year-old is _____ a boy.
9. Parallel lines _____ intersect.
10. A diagonal is _____ a side of a polygon.
11. A triangle _____ has diagonals.
12. Negative numbers are _____ less than zero.

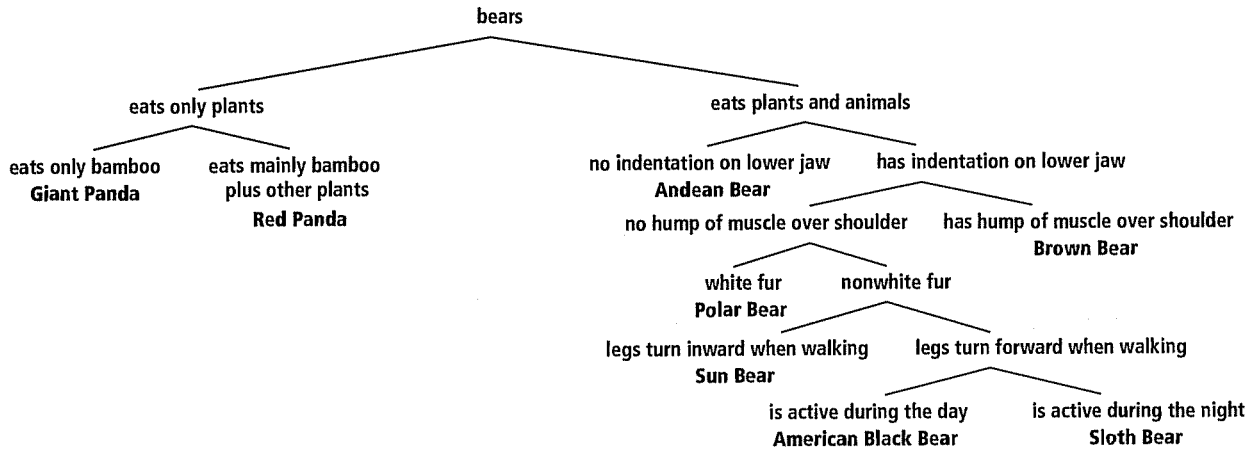
USES Objective I: Apply hierarchies and Venn diagrams to real-world situations.

In 13–16, *true* or *false*. Use the Venn diagram at the right that relates different types of polygons.



13. All squares are quadrilaterals. _____
14. Some quadrilaterals are triangles. _____
15. Some polygons are squares. _____
16. No parallelograms are triangles. _____

In 17–19, use the hierarchy below that shows the organization of different types of bears.



17. If a bear has no hump of muscle over its shoulder, what is the next characteristic that should be considered? _____
18. A bear that eats only plants, including bamboo, roots, and acorns, is which type of bear? _____
19. According to the hierarchy, what are the characteristics of the American black bear?

REPRESENTATIONS

Objective K: Use Venn diagrams and hierarchies to describe relationships among sets.

20. Make a hierarchy to show the relationships listed in the information shown below.

A new car, the Vertex, comes in sedan and sports models.
 All sedans have 4 doors.
 Sedans are made as either a luxury hardtop or a utility hardtop.
 Sports models have 3 or 2 doors.
 The 3-door version is made as a sports hardtop only.
 The 2-door version is made as either a sports convertible or a sports hardtop.

Name _____

4-9A Lesson Master

Questions on SPUR Objectives
See pages 271–275 for objectives.

PROPERTIES Objective H

In 1–4, give an example of a number from the set.

1. An odd integer

2. An irrational number

3. An even prime

4. A positive whole number

In 5–12, give all sets of numbers to which the given number belongs:
rational numbers, integers, irrational numbers, or real numbers?

5. $\frac{5}{17}$

6. $\sqrt{3}$

7. -5.277

8. $-\sqrt{25}$

9. π

10. $3.37 \cdot 10^5$

11. $\sqrt{\frac{16}{25}}$

12. 43

REPRESENTATIONS Objective K

13. Create a hierarchy of the following types of numbers based on their characteristics: rational numbers, positive integers, prime numbers, real numbers, integers, whole numbers, irrational numbers, and negative integers.

4-9B Lesson Master**PROPERTIES**

Objective H: Identify the following types of numbers by their characteristics: real numbers, rational numbers, irrational numbers, positive numbers, negative numbers, integers, whole numbers, odd numbers, even numbers, and prime numbers.

In 1–4, give an example of a number from the set.

1. An even integer

2. An odd prime number less than 5

3. A negative irrational number

4. A positive non-integer rational number

In 5–16, give all sets of numbers to which the given number belongs: whole numbers, positive numbers, even numbers, prime numbers, irrational numbers, or none of these?

5. $-\frac{5}{6}$

6. 4.90900900090000900000...

7. $\sqrt{43}$

8. 2

9. $-\pi$

10. $\frac{50}{\sqrt{25}}$

11. -2.7

12. 3

13. $\frac{\sqrt{121}}{3}$

14. 3.2×10^{12}

15. 3.2×10^{-12}

16. 41

In 17–21, *true* or *false*. Use the hierarchy of numbers.

17. An odd number is always irrational. _____

18. A prime number is always odd. _____

19. A whole number is always an integer. _____

20. A rational number is always an integer. _____

21. An irrational number is always a real number. _____

REPRESENTATIONS

Objective K: Use Venn diagrams and hierarchies to describe relationships among sets.

22. Make a hierarchy of the following sets of numbers: positive integers, integers, zero, rational numbers, composite numbers, negative integers, and prime numbers.

23. Describe the relationship between positive integers and integers in the hierarchy of numbers.

24. Describe the relationship between a prime number and a rational number in the hierarchy of numbers.

25. Describe the relationship between zero and a prime number in the hierarchy of numbers.
