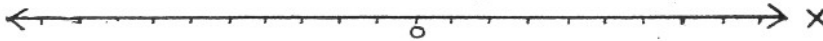


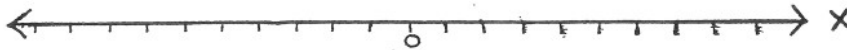
1. An art museum offers a special admission price for children under the age of 5 and senior citizens who are 65 years or older. Everyone else must pay the full admission price to visit the museum. Write a compound inequality in compact form to show the age range for visitors paying full price for admission.

Graph each compound inequality on the number line provided.

2.  $-6 \leq x < 5$



3.  $x < 1$  or  $x \geq 4$



Solve each inequality. Show all your work.

4.  $3x + 4 > 10$

**4**

5.  $-5x - 2 \leq 13$

Decide whether each relation is a function. If the relation is a function, identify the domain and range. If the relation is not a function, explain why. Use complete sentences in your answers.

6. Relation:  $(-1, 4), (-2, 3), (-3, 2), (-2, 1), (-4, 1)$

7. Relation:  $(6, 4), (7, 5), (8, 6), (9, 7), (10, 8)$

8. Professor Hampton has 150 exams to grade. It takes him 3 minutes to grade each exam, so it will take him 450 minutes to grade all of the exams.

a. You can represent the number of hours Professor Hampton must spend grading using the variable  $y$  and the number of exams that have been graded using the variable  $x$ . Write an equation that represents the number of hours Professor Hampton must spend grading in terms of the number of exams that have been graded.

b. Is this equation a function? Use complete sentences to explain your reasoning.

c. What is the domain? Use a complete sentence in your answer.

d. What is the range? Use a complete sentence in your answer.

**4**

Evaluate each function at the specified value. Show all your work.

9.  $f(x) = 2x - 5$  at  $x = 3$

10.  $g(x) = 9 - 6x$  at  $x = -2$

Name \_\_\_\_\_ Date \_\_\_\_\_

Match the name of each property with its definition.

Property	Definition
___ 11. Distributive Property of Multiplication Over Addition	a. If $a$ , $b$ , and $c$ are any numbers and $c \neq 0$ , then $\frac{a + b}{c} = \frac{a}{c} + \frac{b}{c}$
___ 12. Distributive Property of Multiplication Over Subtraction	b. A number such that when you add it to a second number, the sum is the second number.
___ 13. Distributive Property of Division Over Addition	c. A number such that when you multiply it by a second number, the product is the multiplicative identity.
___ 14. Distributive Property of Division Over Subtraction	d. If $a$ , $b$ , and $c$ are any numbers, then $a \cdot (b - c) = a \cdot b - a \cdot c$
___ 15. Closure	e. If you are multiplying three numbers, the product is not affected by the way in which you group two of the three numbers.
___ 16. Additive identity	f. A number such that when you add it to a second number, the sum is the additive identity.
___ 17. Multiplicative identity	g. For any real numbers $a$ and $b$ , if $a = b$ , then $b = a$ .
___ 18. Additive inverse	h. If $a$ , $b$ , and $c$ are any numbers, then $a \cdot (b + c) = a \cdot b + a \cdot c$
___ 19. Multiplicative inverse	i. The order in which you multiply two or more numbers does not affect the product.
___ 20. Commutative Property of Addition	j. For any real numbers $a$ , $b$ , and $c$ , if $a = b$ and $b = c$ , then $a = c$ .
___ 21. Commutative Property of Multiplication	k. A set of numbers is closed under an operation if the result of the operation on two numbers in the set is a number in the set.
___ 22. Associative Property of Addition	l. If you are adding three numbers, the sum is not affected by the way in which you group two of the three numbers.
___ 23. Associative Property of Multiplication	m. For any real number $a$ , $a = a$ .
___ 24. Reflexive property	n. The order in which you add two or more numbers does not affect the sum.
___ 25. Symmetric property	o. A number such that when you multiply it by a second number, the product is the second number.
___ 26. Transitive property	p. If $a$ , $b$ , and $c$ are any numbers and $c \neq 0$ , then $\frac{a - b}{c} = \frac{a}{c} - \frac{b}{c}$

27. What is the domain of the function given in the table?

x	y
-5	15
-2	6
-1	3
3	-9
4	-12

- a.  $\{15, 6, 3, -9, -12\}$
- b.  $\{-5, 15\}, \{-2, 6\}, \{-1, 3\}, \{3, -9\}, \{4, -12\}$
- c.  $\{-5, -2, -1, 3, 4\}$
- d. all real numbers

28. Which of the following is written in function notation?

- a.  $f = 3x + 2$
- b.  $y = 3x + 2$
- c.  $f - x = 3x + 2$
- d.  $g(x) = 3x + 2$

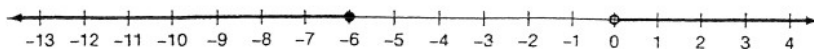
29. Which of the following real numbers is NOT a rational number?

- a. 4.216589...
- b. 8
- c. 1.33333...
- d.  $\frac{5}{9}$

30. A person with a systolic blood pressure greater than 120 mmHg and less than or equal to 139 mmHg is said to have prehypertension. Which inequality represents the range of systolic blood pressure for a person with prehypertension?

- a.  $120 < x < 139$
- b.  $120 < x \leq 139$
- c.  $120 \leq x < 139$
- d.  $120 \leq x \leq 139$

31. Which inequality is represented by the graph below?



- a.  $-6 \leq x > 0$
- b.  $-6 \leq x < 0$
- c.  $x < -6$  or  $x \geq 0$
- d.  $x \leq -6$  or  $x > 0$

For the following equation, identify the property used at each step.

32. Step 1:  $2(x-4) = \frac{24-16}{2}$       GIVEN PROBLEM
- Step 2:  $2x - 8 = \frac{24-16}{2}$       Property from 1 to 2: \_\_\_\_\_
- Step 3:  $2x - 8 = \frac{24}{2} - \frac{16}{2}$       Property from 2 to 3: \_\_\_\_\_
- Step 4:  $2x - 8 = 12 - 8$       Property from 3 to 4: \_\_\_\_\_
- Step 5:  $2x - 8 = 4$       Property from 4 to 5: \_\_\_\_\_
- Step 6:  $2x - 8 + 8 = 4 + 8$       Property from 5 to 6: \_\_\_\_\_
- Step 7:  $2x = 12$       Property from 6 to 7: \_\_\_\_\_
- Step 8:  $\frac{2x}{2} = \frac{12}{2}$       Property from 7 to 8: \_\_\_\_\_
- Step 9:  $x = 6$       Property from 8 to 9: \_\_\_\_\_

