Algebra Election

Strands Operations and Computation; Patterns, Functions, and Algebra
Skill Practice solving problems involving variables

Games Kit Materials (per group)

- *Algebra Election* Gameboard (or Game Masters 6 and 7)
- For Grade 5: 32 *First to 100* Problem Cards (or Game Masters 8 and 9)
- For Grade 6: 32 *Algebra Election* Problem Cards (or Game Masters 10 and 11)
- 1 die
- 4 counters

Additional Materials (per group)

- 1 calculator
- 2 pieces of paper

Players 2 teams, each with 2 players

Grade 5 SRB 256 Grade 6 SRB 276

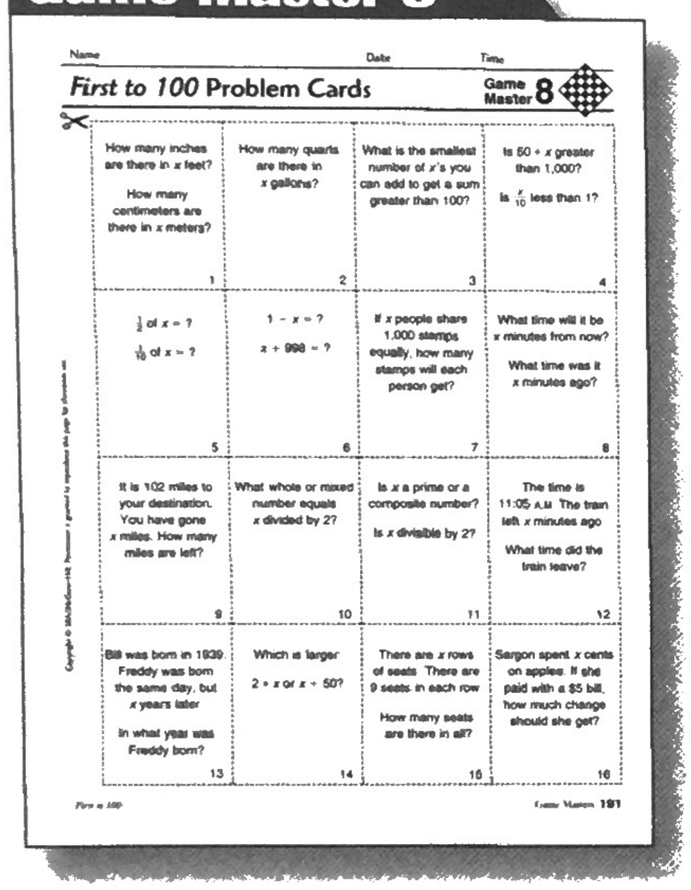
Object of the game To be the first team to collect 270 or more electoral votes and win the election.

Directions

1. Each player puts a counter on Iowa on the map of the United States.
2. One member of each team rolls the die. The team with the higher number goes first.
3. Players alternate turns between teams and partners: Team 1, Player 1; Team 2, Player 1; Team 1, Player 2; Team 2, Player 2.
4. One player shuffles the Problem Cards and places them facedown on the gameboard.
5. The first player rolls the die. The result tells how many moves the player must make from the current state. Each new state counts as one move. Moves can be in any direction as long as they pass between states that share a common border.
   Exceptions: Players can get to and from Alaska by way of Washington state and to and from Hawaii by way of California. Once a player has been in a state, he or she may not return to that state on the same turn.
6. The player makes the indicated number of moves and puts the counter on the last state moved to. The map shows how many electoral votes the state has.
7. The player takes the top Problem Card and substitutes the state's number of electoral votes for the variable x in the problem(s) on the card. The player solves the problem(s) and offers an answer. The other team checks the answer with a calculator.
8. If the answer is correct, the player's team wins the state's electoral votes. They do the following:
   - Write the state's name and its electoral votes on a piece of scratch paper.
   - Write their first initials in pencil on the state to show that they have won it.

   Once a state is won, it is out of play. The opposing team members may land on the state, but they cannot get its votes.
9. If the player did not solve the problem(s) correctly, the state remains open. Players may still try to win its votes.
10. The next player rolls the die and moves his or her counter as described above.
11. The first team to get at least 270 votes wins the election and becomes President and Vice President.
12. When all the Problem Cards have been used, players shuffle the deck and use it again.
13. Each player begins a turn from the last state he or she landed on.

Game Master 8



Name Date Time

First to 100 Problem Cards — Game Master 8

How many inches are there in x feet? How many centimeters are there in x meters? 1	How many quarts are there in x gallons? 2	What is the smallest number of x's you can add to get a sum greater than 100? 3	Is $50 \div x$ greater than 1,000? Is $\frac{x}{10}$ less than 1? 4
$\frac{1}{2}$ of x = ? $\frac{1}{10}$ of x = ? 5	$1 - x$ = ? $x + 998$ = ? 6	If x people share 1,000 stamps equally, how many stamps will each person get? 7	What time will it be x minutes from now? What time was it x minutes ago? 8
It is 102 miles to your destination. You have gone x miles. How many miles are left? 9	What whole or mixed number equals x divided by 2? 10	Is x a prime or a composite number? Is x divisible by 2? 11	The time is 11:05 A.M. The train left x minutes ago. What time did the train leave? 12
Bill was born in 1939. Freddy was born the same day, but x years later. In what year was Freddy born? 13	Which is larger: $2 + x$ or $x + 50$? 14	There are x rows of seats. There are 9 seats in each row. How many seats are there in all? 15	Sargon spent x cents on apples. If she paid with a $5 bill, how much change should she get? 16

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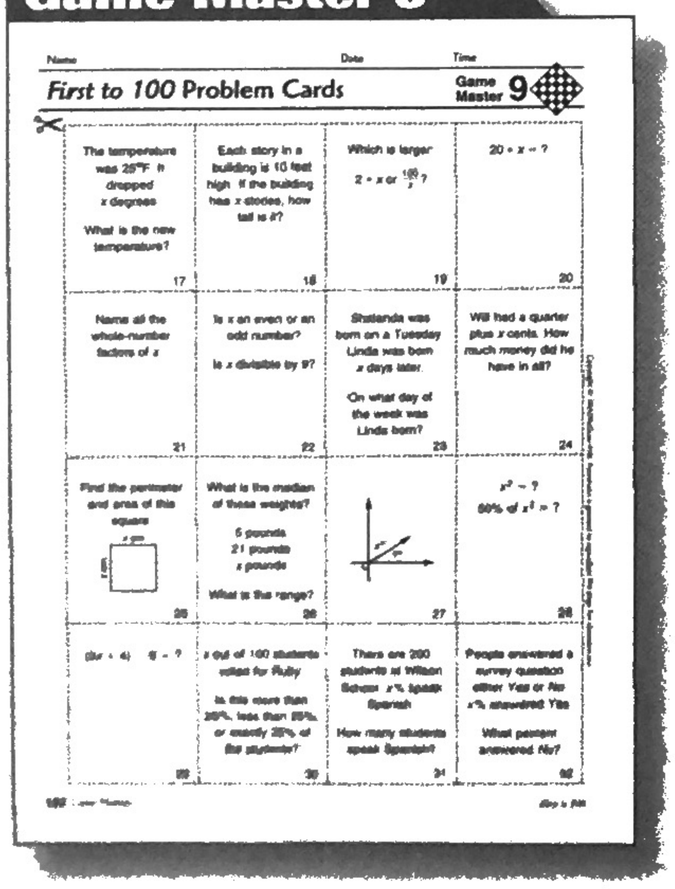
First to 100 — Game Masters 191

Game Master 9



Name Date Time

First to 100 Problem Cards — Game Master 9

The temperature was 25°F. It dropped x degrees. What is the new temperature? 17	Each story in a building is 10 feet high. If the building has x stories, how tall is it? 18	Which is larger: $2 + x$ or $\frac{100}{x}$? 19	$20 + x$ = ? 20
Name all the whole-number factors of x. 21	Is x an even or an odd number? Is x divisible by 9? 22	Shalanda was born on a Tuesday. Linda was born x days later. On what day of the week was Linda born? 23	Will had a quarter plus x cents. How much money did he have in all? 24
Find the perimeter and area of this square. 25	What is the median of these weights? 5 pounds, 21 pounds, x pounds. What is the range? 26	27	x^2 = ? 60% of x^2 = ? 28
$(3x + 4)$ 6 = ? 29	x out of 100 students voted for Ruby. Is this more than 20%, less than 20%, or exactly 20% of the students? 30	There are 200 students at Wilson School. x% speak Spanish. How many students speak Spanish? 31	People answered a survey question either Yes or No. x% answered Yes. What percent answered No? 32

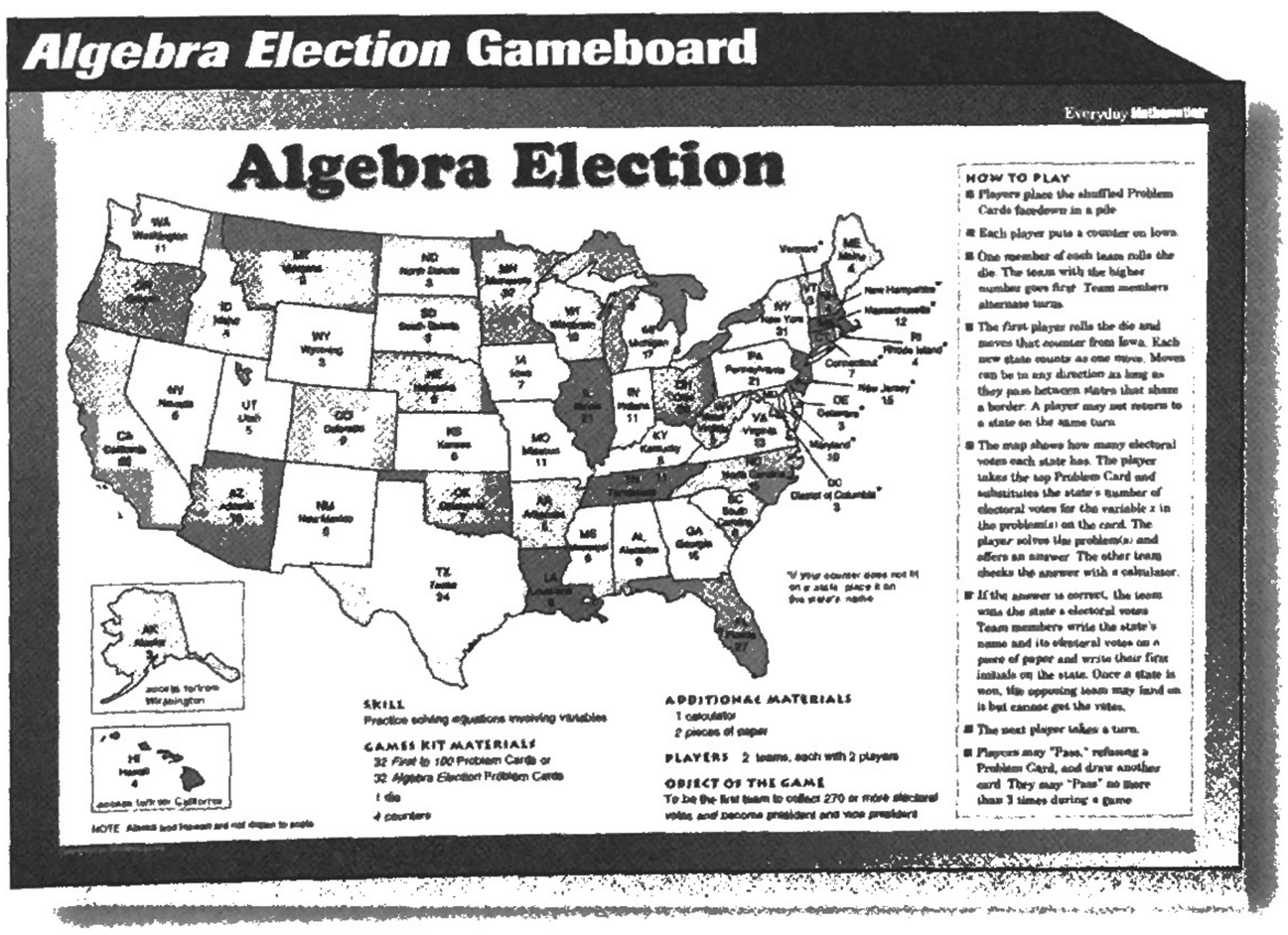
192 — Answers

Notes

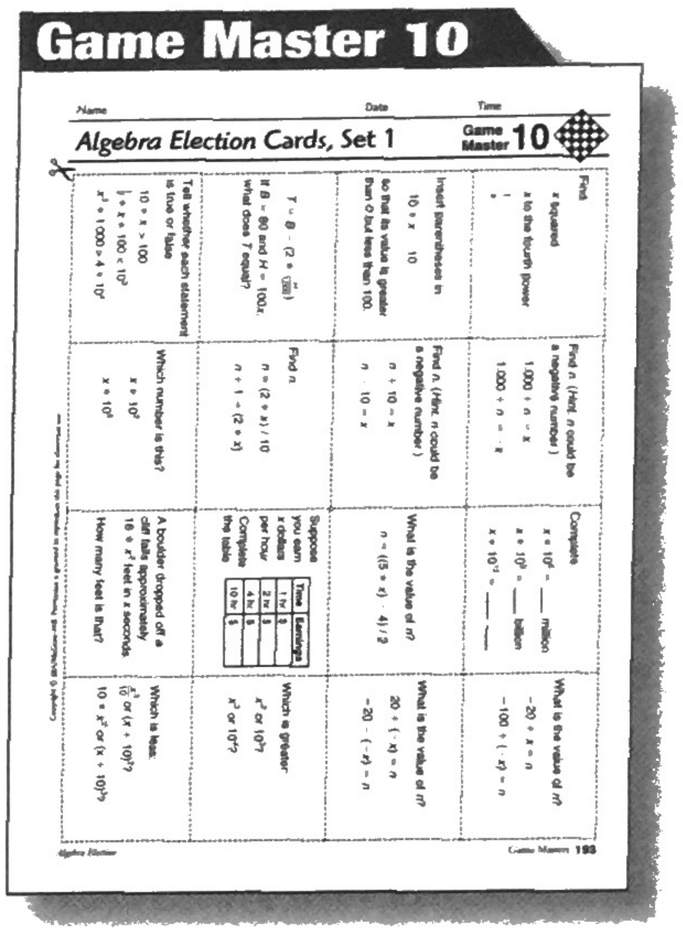
- "A state" means "a state or the District of Columbia (D.C.)."
- Partners may discuss the problem with one another. Each player, however, has to answer the problem(s) on his or her own.
- If a player does not want to answer a particular Problem Card, he or she may say "Pass" and draw another card. A player may pass 3 times during a game.
- If a Problem Card contains several problems, a player must answer all the questions correctly to win a state's votes.
- Suggested strategy: A player looks at the map to see which states have the most votes, and then works with his or her partner to win those states as quickly as they can.

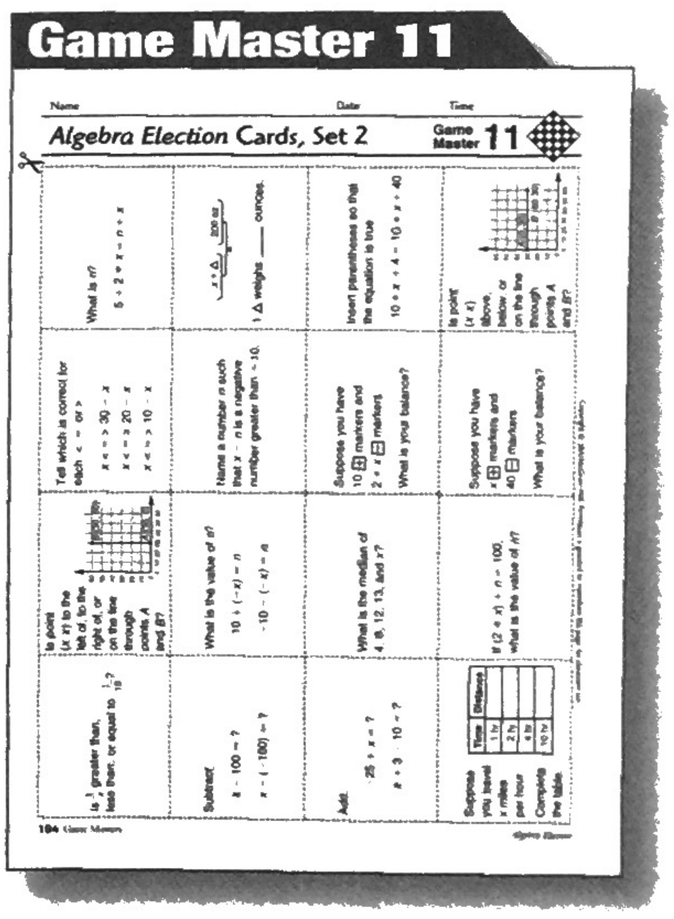
Variations

- Players agree on a time limit for answering problems.
- A team can receive 1 extra point if the player can name the capital of the state landed on.
- A shorter version of the game can be played by going through all 32 cards just once. The team with the most votes at that time is the winner.



The Electoral Vote Map can also be created by taping Game Masters 6 and 7 together.

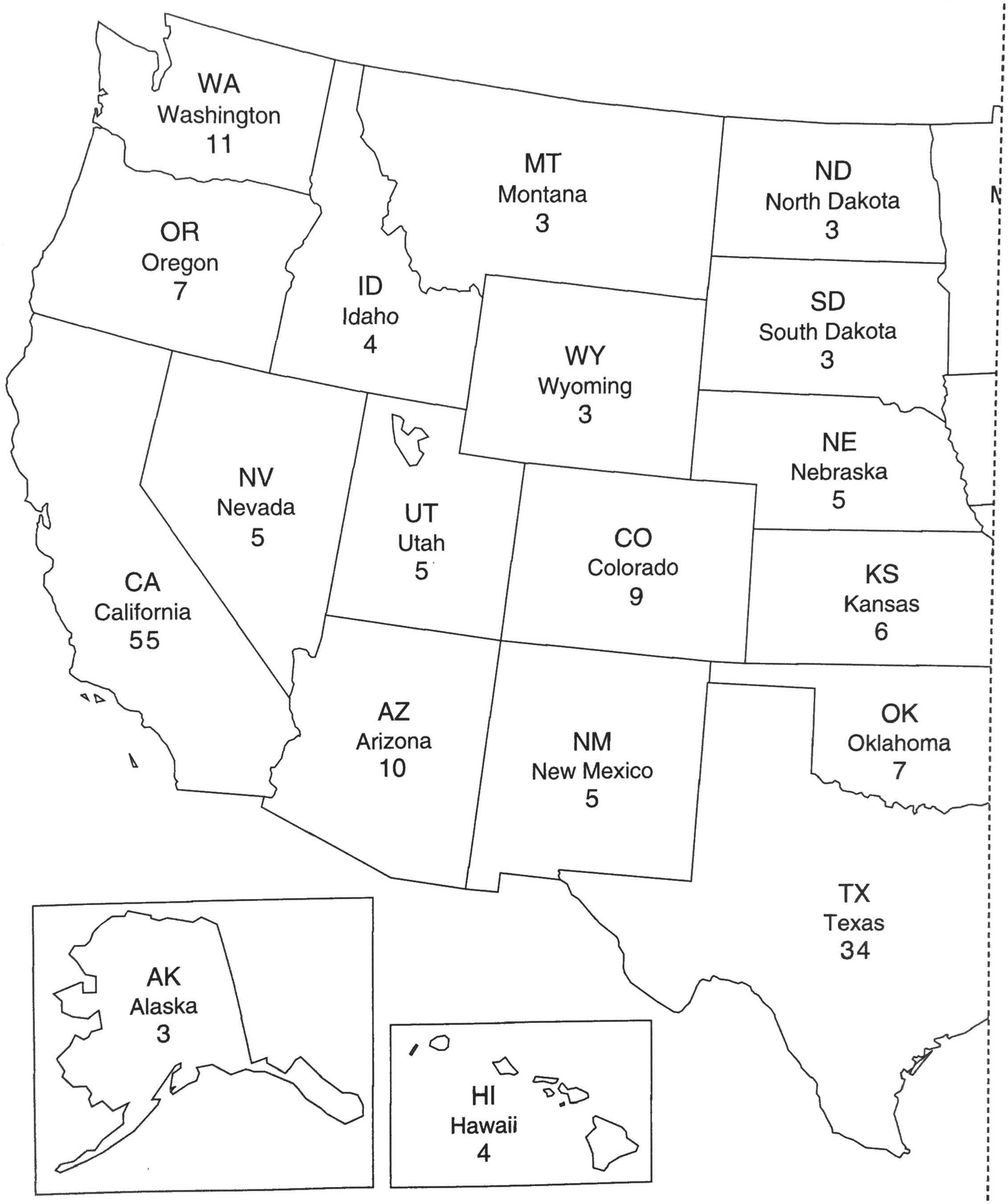




Name Date Time

Algebra Election Gameboard

Game Master 6

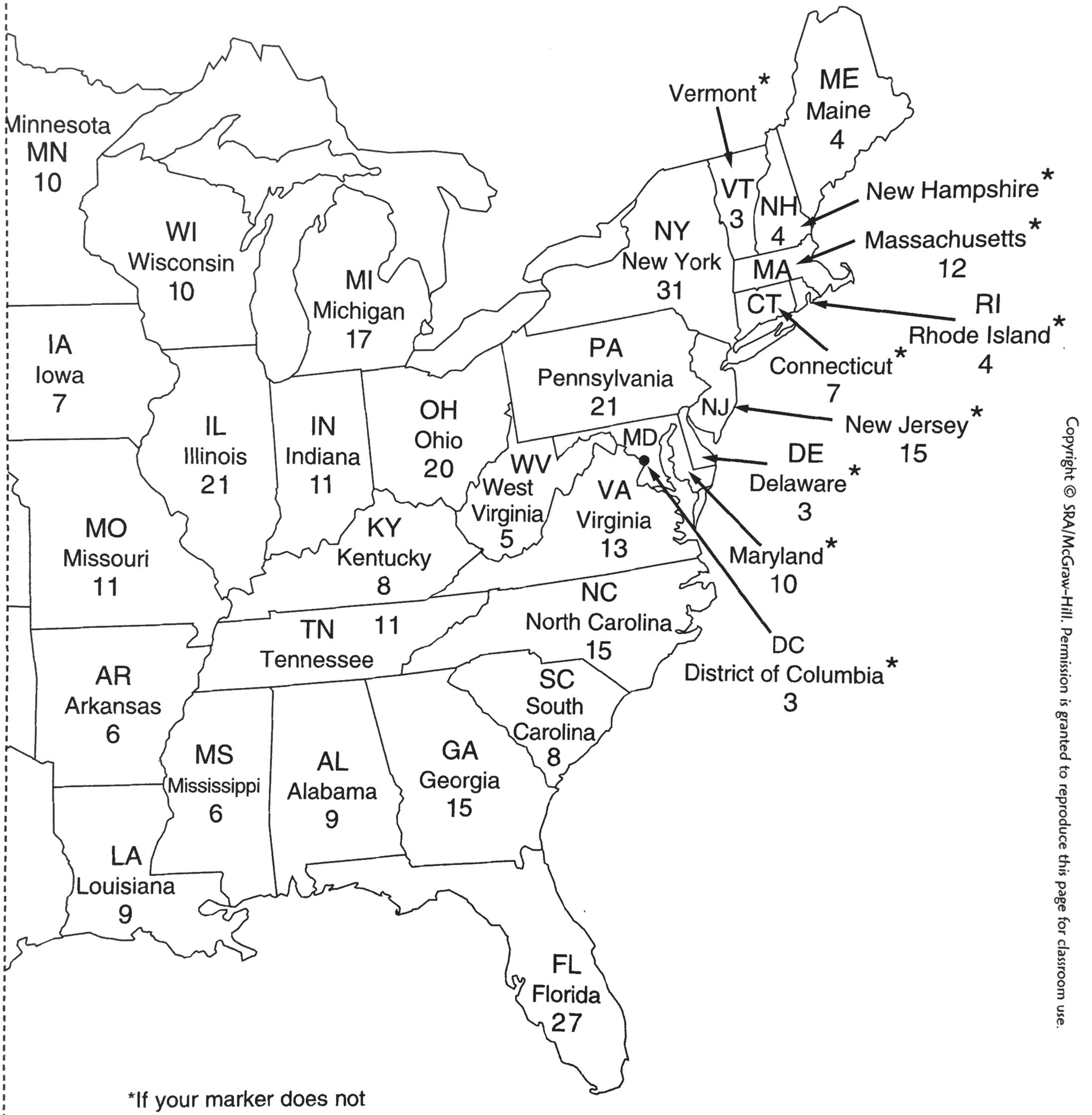


NOTE: Alaska and Hawaii are not drawn to scale.

Name Date Time

Algebra Election Gameboard (cont.)

Game Master 7



*If your marker does not fit on the state, put your marker on the state's name.

Name Date Time

First to 100 Problem Cards

Game Master 8

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Name Date Time

First to 100 Problem Cards

Game Master 9

The temperature was 25°F. It dropped *x* degrees.

What is the new temperature?

17

Each story in a building is 10 feet high. If the building has *x* stories, how tall is it?

18

Which is larger:

$2 * x$ or $\frac{100}{x}$?

19

$20 * x = ?$

20

Name all the whole-number factors of *x*.

21

Is *x* an even or an odd number?

Is *x* divisible by 9?

22

Shalanda was born on a Tuesday. Linda was born *x* days later.

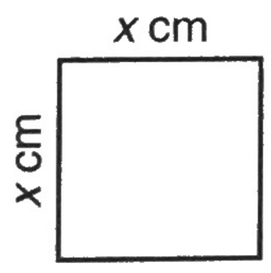
On what day of the week was Linda born?

23

Will had a quarter plus *x* cents. How much money did he have in all?

24

Find the perimeter and area of this square.



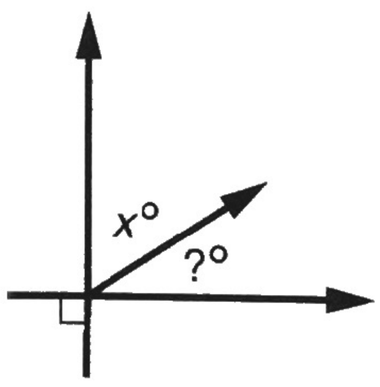
25

What is the median of these weights?

5 pounds
21 pounds
x pounds

What is the range?

26



27

$x^2 = ?$

50% of $x^2 = ?$

28

$(3x + 4) - 8 = ?$

29

x out of 100 students voted for Ruby.

Is this more than 25%, less than 25%, or exactly 25% of the students?

30

There are 200 students at Wilson School. *x*% speak Spanish.

How many students speak Spanish?

31

People answered a survey question either *Yes* or *No*. *x*% answered Yes.

What percent answered *No*?

32

Name _____ Date _____ Time _____

Algebra Election Cards, Set 1

Game Master 10

Find:

x squared

x to the fourth power

$\frac{1}{x}$

Find n. (*Hint:* n could be a negative number.)

$1{,}000 + n = x$

$1{,}000 + n = -x$

Complete.

$x * 10^6 =$ ____ million

$x * 10^9 =$ ____ billion

$x * 10^{12} =$ ____ ____

What is the value of n?

$-20 + x = n$

$-100 + (-x) = n$

Insert parentheses in

$10 * x - 10$

so that its value is greater than 0 but less than 100.

Find n. (*Hint:* n could be a negative number.)

$n + 10 = x$

$n - 10 = x$

What is the value of n?

$n = ((5 * x) - 4) / 2$

What is the value of n?

$20 + (-x) = n$

$-20 - (-x) = n$

$T = B - (2 * \frac{H}{1{,}000})$

If $B = 80$ and $H = 100x$, what does T equal?

Find n.

$n = (2 * x) / 10$

$n + 1 = (2 * x)$

Suppose you earn x dollars per hour.

Complete the table.

Time	Earnings
1 hr	$
2 hr	$
4 hr	$
10 hr	$

Which is greater:

x^2 or 10^3?

x^3 or 10^4?

Tell whether each statement is true or false.

$10 * x > 100$

$\frac{1}{2} * x * 100 < 10^3$

$x^3 * 1{,}000 > 4 * 10^4$

Which number is this?

$x * 10^2$

$x * 10^5$

A boulder dropped off a cliff falls approximately $16 * x^2$ feet in x seconds.

How many feet is that?

Which is less:

$\frac{x^3}{10}$ or $(x + 10)^2$?

$10 * x^2$ or $(x + 10)^3$?

Name

Date

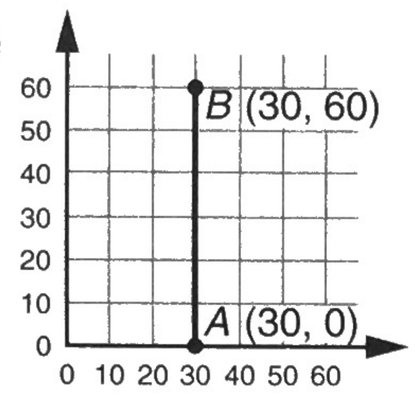
Time

Algebra Election Cards, Set 2

Game Master 11

Is $\frac{1}{x}$ greater than, less than, or equal to $\frac{1}{10}$?

Is point (x, x) to the left of, to the right of, or on the line through points A and B?



Tell which is correct for each: <, =, or >.

$x < = > 30 - x$

$x < = > 20 - x$

$x < = > 10 - x$

What is n?

$5 + 2 * x = n + x$

Subtract.

$x - 100 = ?$

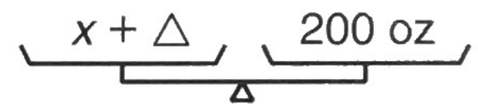
$x - (-100) = ?$

What is the value of n?

$10 + (-x) = n$

$-10 - (-x) = n$

Name a number n such that $x - n$ is a negative number greater than -10.



1 △ weighs _____ ounces.

Add.

$-25 + x = ?$

$x + 3 - 10 = ?$

What is the median of 4, 8, 12, 13, and x?

Suppose you have 10 [+] markers and $2 * x$ [−] markers.

What is your balance?

Insert parentheses so that the equation is true.

$10 * x + 4 = 10 * x + 40$

Suppose you travel x miles per hour.

Complete the table.

Time	Distance
1 hr	
2 hr	
4 hr	
10 hr	

If $(2 * x) + n = 100$, what is the value of n?

Suppose you have x [+] markers and 40 [−] markers.

What is your balance?

Is point (x, x) above, below, or on the line through points A and B?