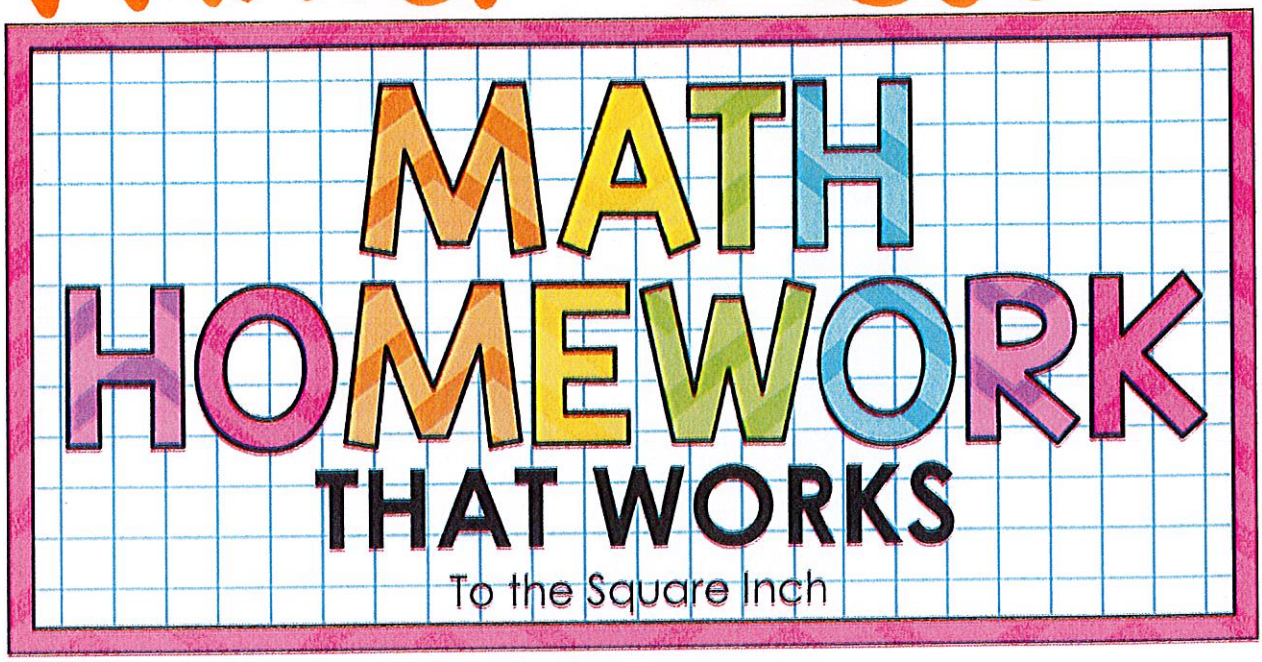
Name: _____ Date Given: 2/14/20

Ms. Mignone & Mr. A's

Winter Recess



Due: Feb 24, 2020

Name: _____

PRACTICE TUTORIAL

Practice & Problem Solving

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Leveled Practice In **11–16**, solve each equation.

11. $y - 12 = 89$

$y - 12 + \square = 89 + 12$

$y = \square$

12. $80 + r = 160$

$80 + r - \square = 160 - \square$

$r = \square$

13. $60 = x - 16$

$60 + \square = x - 16 + \square$

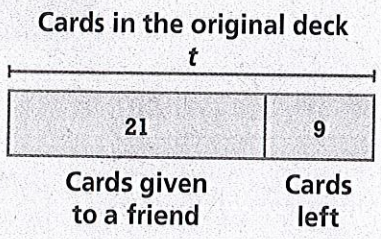
$\square = x$

14. $20 = y + 12$

15. $x + 2 = 19$

16. $z - 313 = 176$

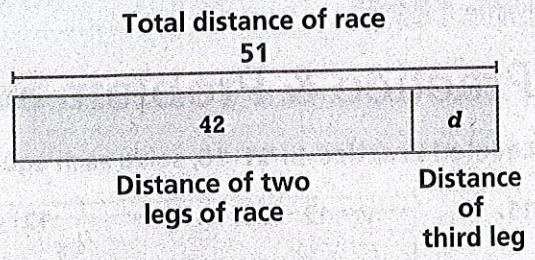
17. You have some trading cards. You give 21 cards to a friend and have 9 left for yourself. How many cards were in your original deck? Write and solve an equation to find t, the number of cards in your original deck.



18. Model with Math Joy added 26 new contacts to her phone list. She now has a total of 100 contacts. Let c represent how many contacts Joy had on her phone list before she updated it. Write an equation and solve for c. MP.4

19. Reasoning Jeremy bought a sandwich and a drink that cost him \$7. His drink cost \$1.75. Solve the equation $7 = s + 1.75$ to find s, the cost of Jeremy's sandwich. MP.2

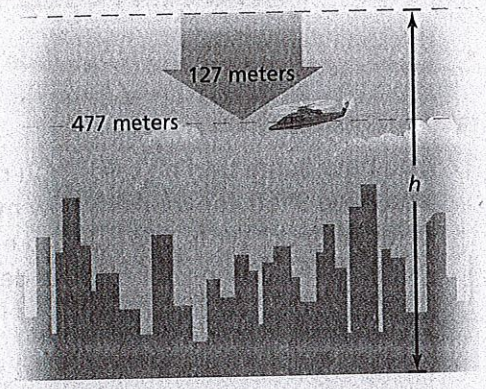
20. A triathlon is about 51 kilometers. One participant completed two of the three legs of the race and traveled 42 kilometers. Solve the equation $42 + d = 51$ for the distance, d, of the third leg of the race.



21. What operation should be used to solve the equation $153 = g + 45$? Solve the equation.

22. Higher Order Thinking In the equation $6 + 3y = 4y + 2$ the variable y represents the same value. Is $y = 2$, 3, 4, or 5 the solution of this equation? Explain.

23. A traffic helicopter descends to hover 477 meters above the ground. Let h be the original height of the helicopter. What is a subtraction equation that represents the problem? What was the original height of the helicopter?



24. The drama club sold all the tickets for its annual production in three days. The club sold 143 tickets the first day and 295 tickets the second day. If the drama club sold 826 tickets, how many tickets were sold on the third day of sales? Solve the equation $438 + t = 826$ for the number of tickets, t, sold on the third day of ticket sales.

25. In a bag of mixed nuts, there are 35 almonds, 34 hazelnuts, 32 walnuts, and p pistachios. The bag has a total of 134 nuts. Find the total number of almonds, hazelnuts, and walnuts. Then write and solve an equation to find the number of pistachios in the bag.

Assessment Practice

26. Select all the equations that have $g = 6$ as the solution.

- ☐ $g + 2 = 10$
- ☐ $g - 1 = 10$
- ☐ $g - 2 = 4$
- ☐ $58 + g = 60$
- ☐ $44 - g = 38$

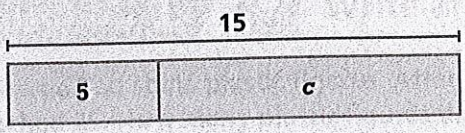
27. Select all the equations that have $x = 4$ as the solution.

- ☐ $42 = 38 + x$
- ☐ $x + 15 = 19$
- ☐ $18 = x - 2$
- ☐ $36 = x + 32$
- ☐ $52 - x = 46$

KEY CONCEPT

KEY CONCEPT

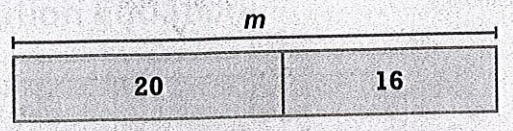
You can use inverse relationships and the properties of equality to solve equations.



$5 + c = 15$

$5 + c - 5 = 15 - 5$ — Subtract 5 from each side.

$c = 10$



$m - 20 = 16$

$m - 20 + 20 = 16 + 20$ — Add 20 to each side.

$m = 36$

Do You Understand?

1. **Essential Question** How can you write and solve an addition or subtraction equation?

2. Explain how you can use the inverse relationship of addition and subtraction to solve the equation $n + 7 = 25$.

3. **Model with Math** Clare had t books. After she bought 8 more books, she had 24 books. Write and solve an equation to find the number of books Clare started with. MP.4

4. **Model with Math** The outside temperature dropped 20°F from the time Arianna ate breakfast until the time she ate dinner. When she ate dinner the temperature was 35°F. Write and solve an equation to find the outside temperature t when Arianna ate breakfast. MP.4

Do You Know How?

In 5–10, solve each equation.

5. $24 + m = 49$

6. $12 = y - 11$

7. $22 = 13 + a$

8. $t - 40 = 3$

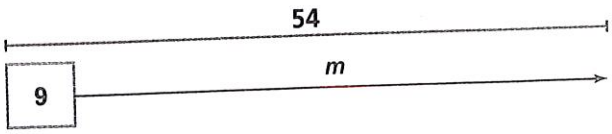
9. $d + 11 = 15$

10. $32 = s - 19$

Y CONCEPT

KEY CONCEPT

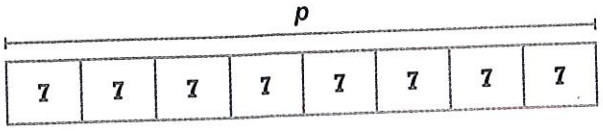
You can multiply or divide both sides of an equation by the same number and it will remain balanced.



$54 \div m = 9$ or $9m = 54$

$9m \div 9 = 54 \div 9$ Divide each side by 9.

$m = 6$



$p \div 8 = 7$

$p \div 8 \times 8 = 7 \times 8$ Multiply each side by 8.

$p = 56$

Do You Understand?

1. **Essential Question** How can you write and solve a multiplication or division equation?

2. Which property of equality would you use to solve the equation $8n = 16$?

3. Which property of equality would you use to solve the equation $a \div 9 = 2$?

4. There are 30 students in the drama club. They are carpooling in 5 vans to perform a play. They want each van to carry an equal number of students. Let s be the number of students in each van. Write and solve a multiplication equation to find the number of students in each van.

Do You Know How?

In 5–8, explain how to solve each equation.

5. $18m = 36$

6. $t \div 3 = 10$

7. $12 = 2y$

8. $22 = a \div 5$

In 9–12, solve each equation.

9. $23d = 2{,}392$

10. $74f = 6{,}179$

11. $y \div 11 = 987$

12. $r \div 187 = 9$

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In 13–16, explain how to get the variable alone in each equation.

13. $8y = 56$

14. $t \div 15 = 3$

15. $u \div 8 = 12$

16. $31y = 310$

In 17–20, solve each equation.

17. $d \div 2 = 108$

18. $7{,}200 = 800s$

19. $x \div 3 = 294$

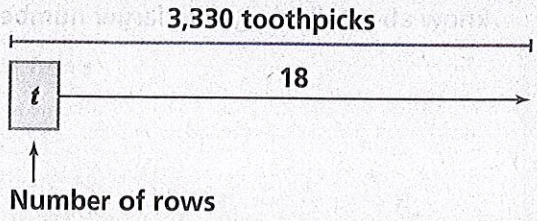
20. $99 = 3x$

In 21 and 22, write a division equation and a multiplication equation to represent each problem.

21. Lolo typed 1,125 words in 15 minutes. Let w represent the number of words typed each minute. If Lolo typed the same number of words each minute, how many words did she type in 1 minute?

22. In 12 weeks Felipé earns $4,500 doing yard work. He earns the same amount each week. Let m stand for the amount earned each week. How much does Felipé make in 1 week?

23. Model with Math Abel has 3,330 toothpicks. He wants to use them all to make a floor mat with 18 equal rows. Use the bar diagram to write a division equation. Then solve the equation to find how many toothpicks Abel should use in each row. MP.4



24. Model with Math Emily took an airplane trip. Her plane flew an equal number of miles each hour. Let m stand for the miles flown each hour. Write an equation to represent one way you can find how many miles Emily's plane flew each hour. MP.4

KEY CONCEPT

Do You Understand?

1. **Essential Question** What does it mean for one variable to be dependent on another variable?

2.

Jake and Viola record the number of miles, m, they bike to help track the number of calories, c, they burn in an hour.

Critique Reasoning Viola says the number of calories, c, they burn is the dependent variable. Do you agree? Explain. MP.3

3. **Reasoning** In the biking problem above, identify at least one other independent variable that could affect the dependent variable. MP.2

Do You Know How?

In 4–11, identify the independent variable and the dependent variable.

4. The amount of money, m, earned if t raffle tickets are sold

5. The number of hours, h, worked and the amount of money, m, earned

6. The number of shelves, s, in a bookcase and the number of books, b, the bookcase can hold

7. The number of pages, p, you read in your book in h hours

8. The number of gallons, g, of water a garden hose produces after running for m minutes

9. The number of peaches, y, a farmer harvests in x bushels

10. The number of hours, h, you spend driving at a speed of r miles per hour

11. Name at least two independent variables that could result in a change in a monthly electric bill.

Name: _____

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In 12–15, identify the independent variable and the dependent variable.

12. The pages, p, in a book and the weight, w, of the book

13. The number of hamburgers, h, sold and the dollar amount of sales, s, taken in

14. The pounds, p, of flour you buy and the number of bread loaves, b, you want to make

15. The temperature, t, of water and the number of minutes, m, the water is in the freezer

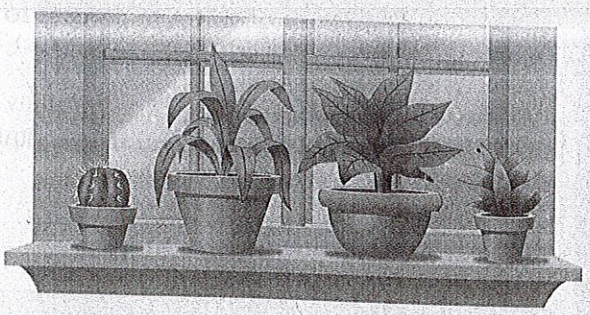
16. Write your own situation. Identify the independent and dependent variables.

17. Name at least two independent variables that could result in a change in the price of a basket of apples.

18. Critique Reasoning You spend c dollars for p identical pairs of pants. A friend claims that because c increases if you increase p, and p increases if you increase c, either c or p could be the independent variable. Is your friend right or wrong? Explain. MP.3

19. The number of oranges in a bag and the cost of the bag of oranges are related. What is the independent variable in this relationship? Explain.

20. The dependent variable g represents the growth of a plant. What variables can represent independent variables in this situation?



In 21 and 22, use the table at the right.

21. The table shows distances driven by the Williams family each day of their vacation. What is an independent variable that would affect the total distance they drove each day?

22. Name at least two dependent variables that could affect the amount of money the Williams family spends on meals during their vacation.

Family Vacation

Day	Distance
1	480 mi
2	260 mi
3	40 mi
4	150 mi
5	100 mi
6	320 mi

23. The cost of a salad at a restaurant depends on many factors. List at least two independent variables that could affect the cost of a salad.

24. Julian drove from New York to Florida. List at least two independent variables that could affect the number of days Julian took to make the trip.

25. The number of incorrect answers and the score on a math test are related. What is the dependent variable in this relationship? Explain.

26. Higher Order Thinking Write a situation in which time, *t*, is an independent variable. Then write a situation in which time, *t*, is a dependent variable.

Assessment Practice

27. Jonas is concerned about the amount of water he uses to wash his laundry. He made a table to show the number of gallons of water used by different washing machines to complete a load of laundry.

Washing Machine	Gallons of Water
Older Top Loading	40
New Standard Model	27
Energy Efficient	14

PART A

Name two independent variables that could affect the amount of water Jonas uses to do laundry.

PART B

Identify the dependent variable and the independent variable in this sentence.

Jonas records the total cost, *c*, of the water he uses and the number of gallons of water, *g*, he uses.

EY CONCEPT

KEY CONCEPT

You can use patterns in a table to write an equation that relates the independent and dependent variables.

j	1	4	7	8	9
m	3	12	21	24	27

The dependent variable m is 3 times the independent variable j: $m = 3j$.

Do You Understand?

1. **Essential Question** How can you use a pattern to write and solve an equation?

2. **Make Sense and Persevere** How do you find a pattern that relates the values in a table? MP.1

3. **Reasoning** In Example 2, what happens to the value of the dependent variable, a, the amount still owed, when the value of the independent variable, w, the number of weeks Ethan pays $5, is increased by 1? MP.2

4. **Look for Relationships** Use the pattern in the table below to write an equation. MP.7

x	y
1	7
2	12
3	17
4	22

Do You Know How?

5. The table shows Brenda's age, b, when Talia's age, t, is 7, 9, and 10. Find the pattern and then write a rule and an equation that represents the pattern. Then find Brenda's age when Talia is 12.

Talia's Age, t	Brenda's Age, b
7	2
9	4
10	5
12	b

In 6 and 7, use the table below.

x	4	5	6	7	8
y	1	3	5		

6. Use the equation $y = 2x - 7$ to complete the table.

7. State the rule for the pattern in words.

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Practice & Problem Solving

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In 8 and 9, write a rule and an equation that represents the pattern in each table.

8.

x	1	2	3	4	5
y	33	34	35	36	37

9.

m	0	1	2	3	4
n	0	3	6	9	12

In 10 and 11, write a rule and an equation that represents the pattern in each table. Then complete the table.

10.

g	32	37	42	47	52
k	17	22	27		

11.

x	0	9	18	27	36
y	0	1	2		

12. To celebrate its 125th anniversary, a company produced 125 expensive teddy bears. These "125 Karat Teddy Bears" are made of gold thread and have diamonds for eyes. The table shows the approximate cost of different numbers of these bears. Write an equation that can be used to find c, the cost of n bears.

Cost of "125 Karat Teddy Bears"

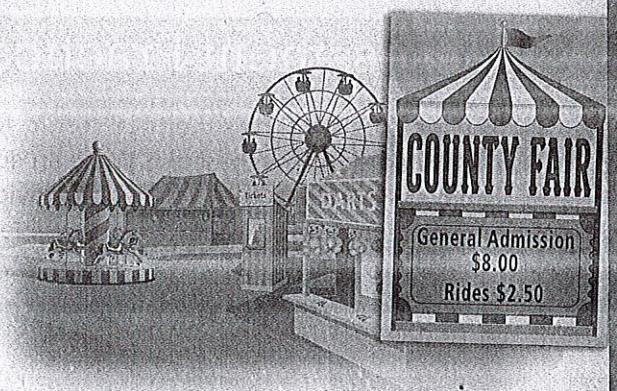
Number, n	Cost, c
4	$188,000
7	$329,000
11	$517,000

13. Andrea attends the county fair. The fair charges for admission and for each ride.

a. Use the pattern in the table to the find the cost for Andrea to ride 5 rides or 8 rides. Then write an equation for the pattern.

Rides, r	Cost, c
3	$15.50
4	$18.00
5	
6	$23.00
8	

b. Find the cost, c, for 12 rides.



In 14 and 15, write an equation that best describes the pattern in each table.

14.

w	2	4	6	8	10
z	0	2	4	6	8

15.

x	0	$\frac{1}{2}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$
y	0	2	4	6	8	10

In 16–19, use the equation to complete each table.

16. $t = 5d + 5$

d	0	1	2	3	4
t	5	10	15		

17. $y = \frac{1}{2}x - 1$

x	2	4	6	8	10
y	0	1	2		

18. $y = 2x + 1$

x	0	1	2	3
y	1	3		

19. $b = \frac{a}{2} - 2$

a	17	14	11	8	5
b					

20. Higher Order Thinking Maya wrote the equation $h = d + 22$ to represent the relationship shown in the table. Is this equation correct? Explain.

h	3	5	7	9
d	33	55	77	99

Assessment Practice

21. The table below shows the total cost, c, for the number of movie tickets purchased, t. Write an equation that can be used to find the cost, c, of 5 movie tickets. Use the equation and complete the table to find the cost of 5 tickets.

Number of Tickets, t	3	5	7	9
Cost, c	\$26.25		\$61.25	\$78.75