

Summer Math Packet
For Students Entering
7th Grade Math

Week 1

1. Complete the table

w	0	2	4	6	8
$20 - \frac{w}{2}$					

Write and evaluate an expression for the problem.

- A 40-fluid ounce bottle of concentrated juice contains 8 servings. How many fluid ounces are in one serving?
- Chloe needs to do 100 hours of community service to earn a merit badge. She has completed 44 hours. How many more hours must she complete?
- One T-shirt costs \$16. How much do 6 T-shirts cost?
- You bring 48 cookies to the bake sale. Your friend brings 60 cookies. How many cookies did you both bring?

Use the Distributive Property to simplify the expression.

- $4(x + 5)$
- $3(z - 9)$
- $4(3.5 + x - 1.5)$
- $2(w + 6) - 12$
- Simplify the expression $2(3 + c + 1)$. Explain each step.

Evaluate the expression when $x = 6$ and $y = 5$.

- $x + y - 4$
- $2(8 - y)$
- $\frac{18}{x}$
- $(x - 1)(y - 1)$

Tell which property is illustrated by the statement.

- $0 + x = x$
- $3 + z = z + 3$
- $8(1) = 8$
- $(a + 1) + 0.5 = a + (1 + 0.5)$
- $(2 \cdot 5)c = 2(5 \cdot c)$
- $0t = 0$

21. $5(x - 2) = 5x - 10$ 22. $100 \cdot z = z \cdot 100$

23. Maria has saved \$10 each week for 8 weeks. She spends \$55 on new shoes. How much money does she have left?

24. Use the Distributive Property and mental math to find 9×43 .

25. A car travels 45 miles on one gallon of gas.

a. Write an algebraic expression to find the distance the car can travel using x gallons of gas.

b. The car uses 10 gallons of gas. How many miles does it travel?

26. You are hiking in an area with steep trails. It takes you twice as long to hike uphill as it takes you to hike downhill. When you get to the bottom of the trail, you take a 30-minute break. On your way back up the trail, you take a 15-minute break.

a. Write a formula for the total time of your hike in hours. Explain what the terms represent in the formula.

b. Evaluate the formula to find the total time for a 1.25-hour hike down the trail.

c. The next time you want to bike a trail. It will take only one and a half times as long to bike uphill as it takes to bike downhill. The breaks will stay the same. Explain how you would change the formula. Then evaluate the formula to find the total time for a 2-hour bike ride down the trail.

Week 2

Multiply.

Write the answer in simplest form.

1. $4 \times \frac{7}{8}$

2. $\frac{3}{5} \times \frac{7}{12}$

3. $\frac{9}{11} \times \frac{2}{3}$

4. $3\frac{1}{2} \times 2\frac{5}{7}$

5. A class party expects to serve 60 students.

a. A serving of punch is $\frac{3}{4}$ cup. How much punch will be needed if each student has one serving?

b. There are 4 cups in 1 quart. Write an expression to convert your answer to quarts. How many quarts of punch are needed?

c. To make the punch, equal amounts of juice and soda water are used. How many 1 quart containers of juice will be needed? Did you need to round up or down? Explain.

Divide. Write the answer in simplest form.

6. $\frac{4}{9} \div \frac{1}{3}$

7. $\frac{5}{6} \div \frac{2}{5}$

8. $3\frac{1}{2} \div \frac{3}{4}$

9. $5\frac{1}{4} \div 3$

10. You write $5\frac{1}{2}$ pages of a report in $2\frac{1}{3}$ hours. Estimate how many pages you write per hour.

Write the decimal as a fraction or mixed number in simplest form.

11. 2.18 12. 0.471

13. 0.66 14. 1.2

15. There are 3 teaspoons in 1 tablespoon.

a. Write an expression for the number of tablespoons represented by t teaspoons. Use multiplication by a fraction.

b. Substitute $1\frac{3}{4}$ teaspoons into your expression.

c. There are 16 tablespoons in 1 cup. How would you change your expression from part (a) to find the number of cups represented by t teaspoons? Write the expression. Evaluate the expression for 4 teaspoons.

Write the fraction as a decimal.

16. $\frac{17}{10}$ 17. $\frac{2}{5}$

18. $\frac{5}{6}$ 19. $\frac{41}{50}$

Evaluate the expression when $a = \frac{1}{3}$, $b = 1\frac{1}{4}$, and $c = \frac{4}{9}$.

20. $a \div b$ 21. $b \times (c \div a)$

22. $\left(c \times 1\frac{1}{2}\right) + a$ 23. $a \times b \times c$

24. What is three quarters of two and a half?

Week 3

Estimate by rounding to the nearest whole number.

1. 12×4.1

2. $14.5 \div 3.4$

3. $49.3 \div 6.7$

4. 5.78×16.32

Multiply. Use estimation to check your answer.

5. 7×3.1

6. 15×1.1

7. 0.57×8

8. 0.2×0.2

9. 1.04×0.3

10. 8.7×0.04

11. The average rainfall in Annette, Alaska in September is 0.31 inch each day. How much rain falls over the course of an average September? (September has 30 days.)
12. Gold has a density of 19.3 grams per cubic centimeter. A small statue has a mass of 63.69 grams. Find its volume in cubic centimeters.
(*Hint:* Volume = mass \div density)
13. The number of migrating birds observed at a site has decreased since last year. To find the number of birds counted this year, multiply the number from last year by 0.84.
- Write an expression to find the number of birds counted this year if m birds were counted last year.
 - Evaluate the expression from part (a) if 425 birds were counted last year.
 - A biologist predicts that the population will drop by 5% next year. To find the number of birds for next year, multiply this year's total by 0.95 and round to the nearest whole number. Write and evaluate an expression to predict the number of birds next year using m , the number from last year. Show your work.
14. Each year a layer of sediment 0.13 centimeter thick is deposited in a lake bed. How thick is the sediment after 80 years?

Divide. Check your answer by multiplying.

15. $28.6 \div 22$ 16. $9 \overline{)4.77}$

17. $0.06 \overline{)0.504}$ 18. $77.7 \div 0.21$

19. $0.0225 \div 0.03$ 20. $6.27 \div 2.09$

21. A market sells a five-pound bag of potatoes for \$4.80 and a three-pound bag of potatoes for \$3.15. Which bag of potatoes is the better buy? Explain your answer.

22. A printer can print one page in 8.4 seconds. How long will it take to print 130 pages?

In Exercises 23–27, use the following information. A photo illustration in a magazine has the layout shown below. The page is 8.5 inches by 11 inches.

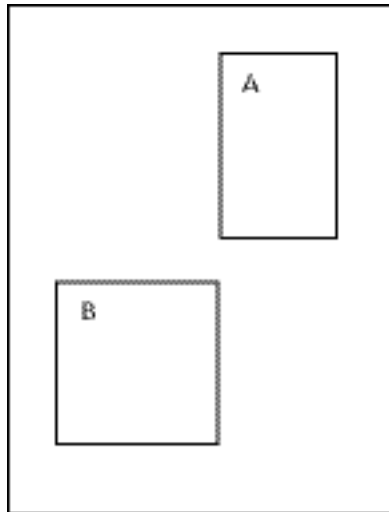
23. Find the area of the page.

24. Photo A is 2.5 inches wide and 4 inches high. Find its area.

25. Photo B is a square with sides of length 3.5 inches. Find its area.

26. Find the area of the white part of the page—that is, the portion with no photos.

27. Estimate how many times more white space the page has than photo space, to the nearest whole number.



Week 4

Write the percent as a fraction or mixed number in simplest form.

1. 26%

2. 110%

3. 0.7%

4. A television show has increased its audience from last year by 45%.

Write this percent as a fraction in simplest form.

Write the fraction or mixed number as a percent.

5. $\frac{21}{1000}$

6. $1\frac{5}{8}$

7. $\frac{6}{25}$

Write the percent as a decimal.

8. 0.05%

9. 128%

10. A teacher weights the final grade as follows: $\frac{1}{5}$ for homework,

25% for a project, 0.4 for quizzes, and 15% for the final exam.

Order these categories from least weighted to greatest weighted.

In Exercises 11–13, use the table.

Question	6th graders	7th graders	8th graders
Participate in sports?	$\frac{3}{20}$	18%	0.22
Participate in other school activities?	33%	0.45	$\frac{11}{25}$

11. Which category in the table shows the least portion?

12. Which is greater, the percent of 7th graders or 8th graders participating in other school activities?

13. Your friend says that at least twice as many 7th graders participate in other activities as play sports. Is this true? Explain.

Find the percent of the number.

14.

12% of 30

15. 85% of 90

16.

158% of 200

17. In Jacksonville, Florida it rains 41% of the days in August, on average. How many days is this? Round your answer to the nearest whole number.

In Exercises 18 and 19, use the table that shows the number of three-point shots attempted and made by two members of the Miami Heat in the 2007-2008 season.

Player	Parker	Jones
Three-point shots attempted over three-point shots made	$\frac{6}{24}$	$\frac{6}{15}$

18. Which player made a greater percent of his three-point shots?

19. Suppose another player made 9 out of 30 shots. What percent would that be? Would it be greater than or less than Parker or Jones?

Use compatible numbers to estimate the percent of the number.

20.

11% of 61

21.

73% of 80

22. You answer 95% of the questions correctly on a 40-question test. How many questions do you answer *incorrectly*?

23. A soccer team has won 62.5% of their 16 games. How many games did they win?

24. You are sketching the phases of the moon for a long-term science project. Over the 40 days you have been observing, it was too cloudy to see the moon on 17.5% of the nights.

a. How many nights was it too cloudy to see the moon?

b. Over the next 8 nights it is cloudy 62.5% of the time. Will the overall percent of "too cloudy" nights for the 48 days be greater than or less than 17.5%? Explain.

Week 5

1. The course for a 1.5-mile cross country race has 0.3 mile uphill or downhill and 1.2 miles on flat ground. What is the ratio of hills to flat ground in simplest form?
2. The ratio of white flour to whole wheat flour in a bread recipe is 2 : 3.
 - a. Write the ratio in two other ways.
 - b. The recipe uses 10 cups of flour. How much of each type of flour is needed?

Write the ratio in simplest form.

3. $\frac{26}{2}$

4. $\frac{6}{15}$

5. A soccer coach decides that practice should consist of 1 part running to 2 parts scrimmaging, and 1 part scrimmaging to 3 parts practicing drills.
 - a. Find the ratio of running time to drill time. Explain your reasoning.
 - b. The practice is 90 minutes long. How many minutes will be spent running, scrimmaging, and practicing drills?

Write a unit rate for the situation.

6. \$4.50 for 6 energy drinks
7. 320 yards in 8 minutes
8. You can buy printer paper for \$4.20 per pack, or you can buy 3 packs and get the fourth one free. Find the unit price of a pack of paper when you use the sale to buy 4 packs.
9. A seal swims 12 feet per second. At this rate, how far does the seal swim in 25 seconds?
10. A snail crawls 4 inches in 20 seconds. At this rate, how far can the snail crawl in 45 seconds?
11. You complete 12 math problems in 15 minutes. How many similar problems can you complete in 40 minutes?

Find the mean of the data.

12. Time (in minutes) with veterinarian for an office visit: 8, 13, 14, 15, 10

13. Cost (in dollars) of a hardcover book: 24, 23, 21, 24

14. The list gives the distance (in miles) between your school and the six other schools your team has played this season in intramural sports.

8, 9, 5, 11, 7, 8

a. Find the mean of the data.

b. Friday they will play at the middle school in the neighboring town, which is only 1 mile away. Will the mean distance between schools increase or decrease after the new school is included? Explain. Then find the new mean.

Find the median and mode(s) of the data.

15. 18, 21, 22, 18, 19 **16.** 0.4, 0.6, 0.6, 0.9, 0.4, 0.7, 0.8

17. Find the mode(s) of the data.

Lunch Chosen			
Pizza	Pizza	Salad	Pasta
Pizza	Pasta	Pasta	Salad
Pasta	Pizza	Pasta	Salad
Pizza	Pizza	Salad	Pasta

18. The data are the prices (in dollars) of sports jackets.

28, 165, 47, 72, 30, 95, 55, 68

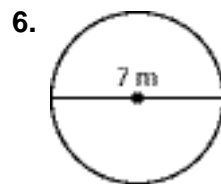
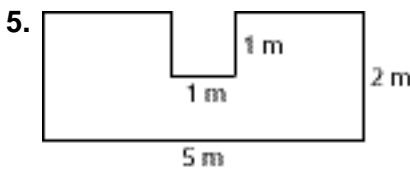
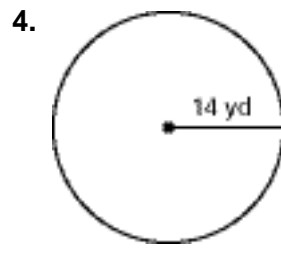
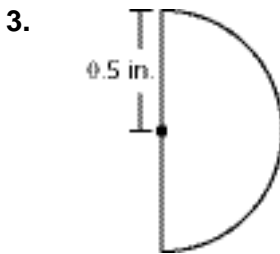
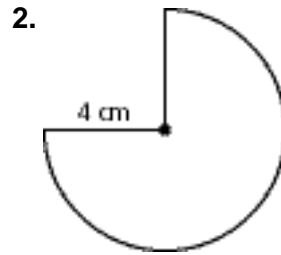
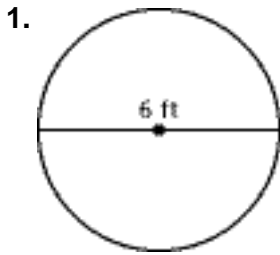
a. Find the mean, median, mode(s), and range.

b. Which measure of central tendency represents the data best? Explain your answer.

c. Which measure of central tendency is most affected by the outlier?

Week 6

Find the perimeter or circumference of the figure.

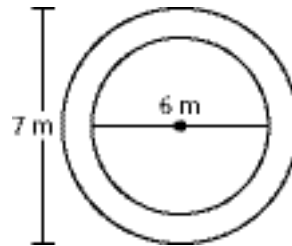


7. A circular planter has an outer diameter of 7 meters and an inner diameter of 6 meters.

a. Find the circumference of each circle. Round to the nearest tenth of a meter.

b. The curved bricks used to build the planter measure 20 centimeters along the side that faces out. How many of these bricks can fit along the outside edge of the planter? (Round to the nearest whole brick.)

c. How many chrysanthemums, spaced 0.4 meter apart, could you put around the inner edge of the planter?

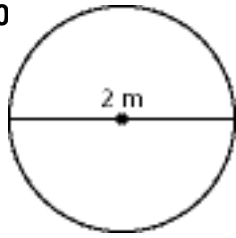


8. A semicircular rug is 35 inches in diameter. What is the perimeter? If a tassel is attached every 1.5 inches, how many tassels are there?

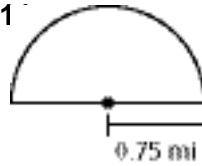
9. A circular mirror is 21 inches in diameter. It has a 1-inch wide wooden frame. You want to cover the outer edge of the frame with a copper strip. How many inches of copper do you need?

Find the area of the figure.

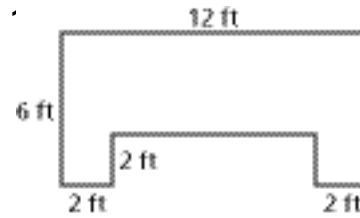
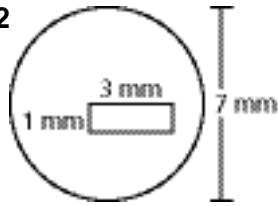
10



11



12



14. The bottom layer of a circular cake is 10 inches in diameter. You frost only the top of this layer with jam.

a. Find the area to be spread with jam.

b. The jam is spread $\frac{1}{4}$ of an inch thick. Multiply this by the area in part (a) to find the cubic inches of jam needed. One cubic inch of jam weighs 0.5 ounce. How many ounces of jam do you need? Is an 8-ounce jar enough?

15. An office manager needs to decide between two tables for the conference room. One is rectangular, 5 feet wide by 10 feet long. The other is a circle 8 feet in diameter.

a. Find the perimeter or circumference of each table.

b. Find the area of each table.

c. Which table can sit more people? Explain.

16. A muffin has a diameter of 7 centimeters. A square piece of coffee cake is 6 centimeters on each side. They are the same height. Which is larger? (*Hint:* Because they are the same height, you only need to compare the area of the top of each baked good.)

Week 7

Write the word sentence as an equation.

1. The sum of a number a and 17 is 21.
2. 14 is 7 times a number c .
3. A number b divided by 6 equals 15.
4. 13 is 3 less than a number z .
5. The area of a rectangular banner is 120 square feet. The banner is 40 feet long. Write an equation you can use to find the height h of the banner.

Solve the equation. Check your solution.

6. $x - 7 = 12$
7. $14 + y = 20$
8. $p - 12 = 38$
9. $12r = 300$
10. $2.7 \cdot b = 54$
11. $27 = \frac{a}{0.8}$

12. One third of the viewers at a movie opening rated the movie as Good or Very Good. Thirty-five people rated it Good and twenty people rated it Very Good. Write and solve an equation to find the number of people p in the audience.
13. One afternoon your aunt picks you up at the middle school at 2:00 and drives 7.5 miles to the elementary school to pick up your brother. She drives at a speed of about 30 miles per hour.
 - a. Write and solve an equation to find the part of an hour spent driving. What time do you arrive at your brother's school?
 - b. She then drives you both to the dentist. The trip takes half an hour. Can you find her speed for this trip? Explain.
14. You purchase a \$3.15 sandwich with a \$5 bill. Write and solve an addition equation to find the change you will receive.
15. A history test is worth 100 points. Each short-answer question is worth 3 points, and the essay question is worth 40 points. Write and solve an equation to find the number of short-answer questions.

Solve the equation. Check your solution.

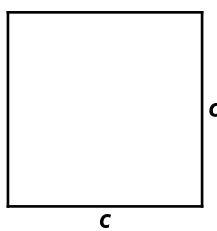
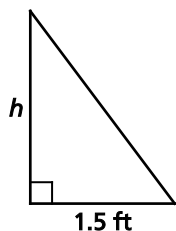
16. $3y + 3y = 12$ 17. $21 = 3(t + 4)$ 18. $\frac{4 + z}{8} = 2$

19. You go for a walk in the city. Each city block is $\frac{1}{12}$ mile. You also walk along a park that is $\frac{1}{4}$ mile long. The entire walk is $\frac{2}{3}$ mile.

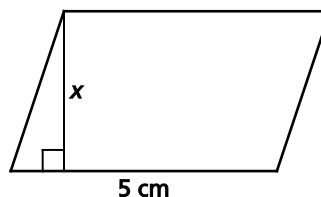
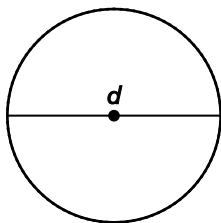
Write and solve an equation to find out how many blocks you walked.

Write and solve an equation to find the missing dimension of the figure. Check your solution.

20. Area = 1.5 ft^2 21. Perimeter = 0.6 m



22. Circumference = 44 in. 23. Area = 15 cm^2



24. Explain how you could estimate the diameter of a tree by measuring the distance around the trunk of the tree.

25. A rectangular reflecting pool contains 920 cubic meters of water. The pool is 0.4 meter deep and 100 meters wide. How long is the pool?

26. How many 1-inch cubes are needed to create a rectangular prism that is 6 inches long, 2 inches wide, and 3 inches high?

Week 8

Write the word sentence as an inequality.

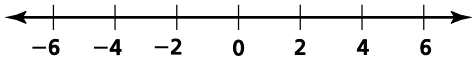
1. A number n is no more than 100.
2. 0 is greater than a number x .
3. The difference of number p and 2 is at least 5.
4. A number b divided by 3 is less than 3.

Tell whether the given value is a solution of the inequality.

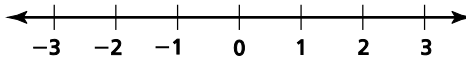
5. $2y - 1 \leq 15$; $y = 11$
6. $\frac{n}{3} - 2 > 7$; $n = 21$

Graph the inequality on the number line.

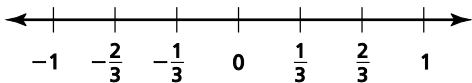
7. $w \leq 4$



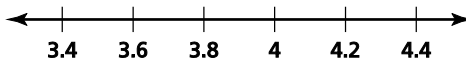
8. $a > 0$



9. $z < \frac{1}{3}$



10. $m \geq 3.8$

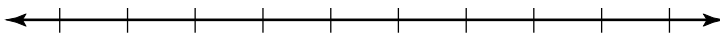


11. A freight elevator can hold 3000 pounds. Six boxes, each weighing 150 pounds, have been loaded in the elevator. Write and solve an inequality to find how many additional boxes of the same type could be safely loaded in the elevator.

In Exercises 12 and 13, use the following information. You have a telephone plan that costs \$6.50 per month plus \$0.04 per minute.

You want to spend no more than \$15 per month.

12. Write and graph an inequality to represent how many minutes you can use each month and still stay within your budget.



13. If the company rounds a part of a minute used up to the nearest minute, what is the maximum number of minutes you can use each month?

Solve the inequality.

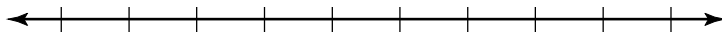
14. $x + 1 > 3$ 15. $z - 13 \leq 20$ 16. $80 < 20y$

17. $\frac{w}{6} \geq 0.5$ 18. $15 < 4t - 7$ 19. $\frac{x}{10} + 11 \leq 31$

20. $0.3 + 0.1 \geq 2m - 0.2$ 21. $\frac{m}{8} + \frac{1}{4} \geq 1 - \frac{1}{4}$

Solve the inequality. Graph the solution.

22. $12c - 3 \leq 0$



23. $8 < \frac{x}{4} + 5$



In Exercises 24–26, use the following information. A gymnastics coach plans a 2-hour class that will include 15 minutes of warm-ups and at most 20 minutes each on floor, rings, vault, and bars.

24. Write and solve an inequality to represent the number of minutes spent on the 4 events.

25. The coach plans to spend at least one hour on the four event practices, and to spend the remainder of the class on an obstacle course. Write two inequalities to represent the minimum and maximum time available for the obstacle course. (Include the warm-up time.)

26. What is the minimum time for the obstacle course? the maximum time? What would have to be true in each case?

Week 9

Draw a mapping diagram of the set of ordered pairs.

1. $(0, 8), (1, 10), (2, 12), (3, 14)$ 2. $(3, 8), (4, 6), (5, 8), (6, 4)$

3. The table shows the speed of a falling parachutist.

Time (seconds)	0.1	0.2	0.3	0.4	0.5
Speed (meters per second)	0.9	1.9	2.9	3.9	4.9

a. Use the table to draw a mapping diagram.

b. What output would you expect for an input of 0.7 second? Explain.

c. Does the graph represent a linear function?

Write an equation that describes the function.

4. The output is 2 less than the input.

5. The output is one third the input.

Find the value of x for the given value of y .

6. $y = 2x - 2; y = 14$

7. $y = 5x - 1; y = 4$

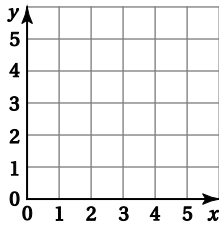
8. A clerk earns \$8 an hour. Write an equation to relate earnings E and hours worked h . How much does the clerk earn after working 40 hours?

9. Does the table represent a linear function? Explain.

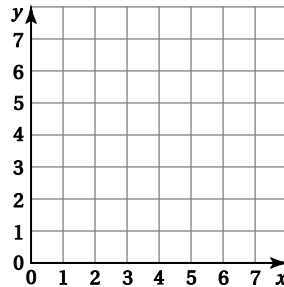
Input, x	0	2	4	6	8	10
Output, y	3	2	1	0	1	2

Graph the function.

12.



13. $y = x$ $y = \frac{3}{2}x + 2$



14. An anthropologist uses the two formulas below to estimate the height h of an individual given the length t of the thigh bone. Both measurements are in inches.

Male: $h = 2.2t + 27$

Female: $h = 2.3t + 24$

- a. If you graphed the two formulas, which one would rise more steeply? How do you know?
- b. Find the height of a male and of a female with a 15-inch thigh bone.
- c. Find the length of the thigh bone of a 71-inch tall man.

Week 1

1. 20, 19, 18, 17, 16

2. $\frac{40}{8}$; 5 fluid ounces

3. $100 - 44$; 56 hours 4. 6×16 ; \$96

5. $48 + 60$; 108 cookies 6. $4x + 20$

7. $3z - 27$ 8. $8 + 4x$ 9. $2w$

10. $2(3 + c + 1)$
 $= 2(c + 3 + 1)$ Commutative Property of Addition
 $= 2(c + 4)$ Add 3 and 1.
 $= 2c + 8$ Distributive Property

11. $\frac{7}{20}$ 12. 6 13. 3 14.

15. Addition Property of Zero

16. Commutative Property of Addition

17. Multiplication Property of One

18. Associative Property of Addition

19. Associative Property of Multiplication

20. Multiplication Property of Zero

21. Distributive Property

22. Commutative Property of Multiplication

23. \$25 24. 387

25. a. $45x$ miles b. 450 miles

26. a. $T = d + 2d + 0.75$; T is the total time in hours, d is the time in hours to hike downhill, $2d$ is the time in hours to hike uphill, and 0.75 hour is the time spent on breaks.

b. 4.5 hours

c. The time to travel up the trail changes from $2d$ to $1.5d$. The time for breaks is the same.
 $T = d + 1.5d + 0.75$; 5.75 hours

Week 2

1. $3\frac{1}{2}$ 2. $\frac{7}{20}$ 3. $\frac{6}{11}$ 4. $9\frac{1}{2}$

5.a. 45 cups b. $45 \div 4$; $11\frac{1}{4}$ quarts

c. First find the amount of juice,

$11\frac{1}{4} \times \frac{1}{2} = 5\frac{5}{8}$ quarts. To make enough, you

will need to round up to 6 quarts; only part of the last container is needed.

6. $1\frac{1}{3}$ 7. $2\frac{1}{12}$ 8. $4\frac{2}{3}$ 9. $1\frac{3}{4}$

10. 3 pages per hour

11. $2\frac{9}{50}$ 12. $\frac{471}{1000}$ 13. $\frac{33}{50}$ 14. $1\frac{1}{5}$

15. a. $t \times \frac{1}{3}$ b. $\frac{7}{12}$ tablespoon

c. Multiply the expression by $\frac{1}{16}$.

$t \times \frac{1}{48}$; $\frac{1}{12}$ cup

16. 1.7 17. 0.4

18. 0.08333..., or $0.8\bar{3}$ 19. 0.82

20. $\frac{4}{15}$ 21. $1\frac{2}{3}$ 22. 1

23. $\frac{5}{27}$ 24. $1\frac{7}{8}$

Week 3

1. 48 2. 96 5 3. 7 4.
5. 21.7 6. 16.5 7.
4.56 8. 0.04
9. 0.312 10. 0.348
11. 9.3 inches 12.
3.3 cubic inches
13. a. $0.84m$
b. 357 birds
c. $0.95 \cdot (\text{this year's total}) = 0.95(0.84m)$
 $= 0.95(357)$
 ≈ 339 birds;
also accept $0.95(0.84m) = 0.798m$
 $= 0.798(425)$
 ≈ 339 birds
14. 10.4 centimeters 15.
1.3
16. 0.53 17. 8.4
18. 370 19. 0.75 20. 3
21. the five-pound bag; the cost per pound with the five-pound bag is \$0.96, the cost per pound with the three-pound bag is \$1.05, and \$0.96 is less than \$1.05.
22. 1092 seconds; (also accept 18.2 minutes or 18 minutes 12 seconds)
23. 93.5 square inches 24. 10 square inches
25. 12.25 square inches
26. 71.25 square inches
27. about 3 times

Week 4

1. $\frac{13}{50}$ 2. $1\frac{1}{10}$ 3. $\frac{7}{1000}$
4. $\frac{9}{20}$ 5. 2.1% 6.
162.5%
7. 24% 8. 0.0005 9.
1.28
10. final exam, homework, project, quizzes
11. 6th graders who participate in sports
12. 7th graders
13. Write the portions in the same form: 0.18 play sports and 0.45 participate in other activities.
 $2 \times 0.18 = 0.36$ and $0.36 < 0.45$ so yes, it is true.
(2.5 times as many 7th graders participate in other activities as play sports.)
14. 3.6 15. 76.5
16. 316
17. 13 days 18. Jones
19. 30%; greater than Parker and less than Jones
20. about 6 21. about 60
22. 2 questions 23.
10 games
24. a. 7 nights
b. The overall percent will be greater than 17.5% because the percent of cloudy nights in the final 8 days, 62.5%, is much greater than the percent during the first 40 nights, 17.5%.

Week 5

1. $\frac{1}{4}$
- 2.a. $\frac{2}{3}$, 2 to 3
- b. 4 cups white flour, 6 cups whole wheat flour
3. $\frac{13}{1}$ 4. $\frac{2}{5}$

5. a. 1 to 6; *Sample answer:* Suppose 1 minute is spent running. Then 2 minutes are spent scrimmaging. If 2 minutes are spent scrimmaging, then 6 minutes are spent practicing drills. So the ratio of running time to drill time is 1 : 6.

b. 10 minutes running, 20 minutes scrimmaging, 60 minutes practicing drills

6. \$0.75 per drink 7. 40 yards per minute
8. \$3.15 per pack 9. 300 feet
10. 9 inches 11. 32 problems
12. 12 minutes 13. \$23

14. a. 8 miles

b. The mean will decrease because the new value, 1, is less than the mean. The new mean is 7 miles.

15. median: 19; mode: 18

16. median: 0.6; modes: 0.4 and 0.6

17. pizza, pasta

18. a. mean: \$70; median: \$61.50; no mode; range: \$137

b. *Sample answer:* the median; the mean is higher than many of the values and there is no mode.

c. the mean

e. 12; without the data value of 12 included, the mean is approximately 4.4 movies/month which is a better measure of central tendency.

f. Answers will vary.



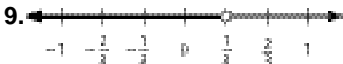


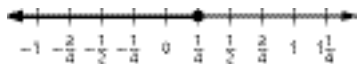

Week 6

1. 18.84 ft² 2. 26.84 cm
3. 2.57 in. 4. 88 yd or 87.92 yd
5. 21.98 m 6. 16 m 7. 22 m or
- 7.a. 22.0 m, 18.8 m b. 110 bricks
- c. 47 chrysanthemums
8. 90 in.; 60 tassels 9. 72.22 in.
10. 3.14 m² 11. about 0.88 mi²
12. 35.5 mm² 13. 56 ft²
14. a. 78.5 in.² b. 19.625 in.³; about 9.8 oz; no
15. a. 30 ft, 25.12 ft b. 50 ft², 50.24 ft²
- c. The rectangular table has a greater perimeter, so more people will fit around it.
16. The muffin is larger, 38.5 cm² compared to 36 cm² for coffee cake.

Week 7

1. $a + 17 = 21$ 2. $14 = 7c$ 3. $b \div 6 = 15$
4. $13 = z - 3$ 5. $120 = 40h$ 6. $x = 19$
7. $y = 6$ 8. $p = 50$ 9. $r = 25$
10. $b = 20$ 11. $a = 21.6$
12. $\frac{1}{3}p = 55$; 165 people
13. a. Let h be the part of an hour spent driving;
 $30h = 7.5$; $h = 0.25$; 2:15
 b. No; you don't know the distance to the dentist.
14. Let x be the amount of change;
 $3.15 + x = 5$; \$1.85.
15. Let n be the number of short-answer questions;
 $3n + 40 = 100$; 20 short-answer questions.
16. $y = 2$ 17. $t = 3$ 18. $z = 12$
19. Let b be the number of blocks you walk;
 $\frac{1}{12}b + \frac{1}{4} = \frac{2}{3}$; 5 blocks
20. $1.5 = \frac{1}{2}(1.5)h$; 2 ft
21. $0.6 = 4c$; 0.15 m
22. $44 = \frac{22}{7}d$; 14 in.
23. $15 = 5x$; 3 cm
24. Measure the circumference, then use the formula
 $\pi d = C$; divide the circumference by 3.14 to
 estimate the diameter.
25. 23 m
26. 36 cubes

Week 8

1. $n \leq 100$ 2. $0 > x$
3. $p - 2 \geq 5$ 4. $\frac{b}{3} < 3$
5. not a solution 6. not a solution
7. 
8. 
9. 
10. 
11. Let x be the number of additional boxes;
 $150x + 6(150) \leq 3000$; $x \leq 14$, at most 14 boxes.
12. Let m be the number of minutes used;
 $6.5 + 0.04m \leq 15$; $m \leq 212.5$;
Sample number line:

13. 212 minutes
14. $x > 2$
15. $z \leq 33$
16. $4 < y$ 17. $w \geq 3$ 18. $5.5 < t$
19. $x \leq 200$ 20. $0.3 \geq m$ 21. $m \geq 4$
22. $c \leq \frac{1}{4}$; *Sample number line:*

23. $12 < x$; *Sample number line:*


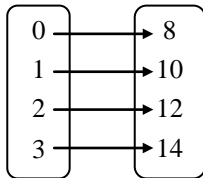
24. Let t be the number of minutes spent altogether on the four events; $\frac{t}{4} \leq 20$; $t \leq 80$; at most 80 minutes.

25. $x \leq 45$, $x \geq 25$

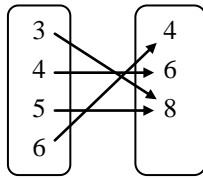
26. Minimum time is 25 minutes, spending 15 minutes on warm-up and 20 minutes on each of the 4 events. Maximum time is 45 minutes, spending 15 minutes on warm-up and 60 minutes on events.

Week 9

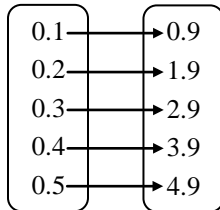
1. **Input** **Output**



Input **Output**



3.a. **Input** **Output**



b. 6.9; Following the pattern in the table, the speed for 0.6 second is 5.9 meters per second and the speed for 0.7 second is 6.9 meters per second.

c. yes

4. $y = x - 2$ 5. $y = \frac{1}{3}x$

6. $x = 8$ 7. $x = 1$

8. $E = 8h$; \$320

9.No; the graph is not a line.

10.

Input, x	10	9	6	4	3
Output, y	34	31	22	16	13

11. Yes; for each input the output is \$25. The equation $a = 25$ represents the situation.

12.



14. a. The graph of female height; *Sample answer:* If the length of the femur increases 1 inch, the male graph rises 2.2 inches and the female graph rises 2.3 inches.

b. male: 60 in.; female: 58.5 in.

c. 20 in.