

Name _____ **Date** _____

Parent Signature _____

REGION #16

SUMMER MATH PACKET

for Students entering
Grade 6

Dear Student (and Parent),

This packet is a requirement. It contains all types of problems to help you review and prepare for math in 6th grade. It is important that you try each question. When you return to school in August, your 6th grade teacher will collect and check your packet for completion.

Try your best and remember to bring back your packet on the first day of school!

Thank you!!

To the Parents:

School & Home Connections Working Together for Mathematics Success

MENTION MATHEMATICS and many of us shudder. We remember trying to do boring number exercises or trying to remember rules that did not make any sense. Times have changed. The mathematics needed today is different from what our parents needed a generation ago. In our everyday lives we manage resources, track schedules, make decisions based on data and probabilities, and much more. We work with calculators and computers, and other electronic communications and technologies that just weren't around when most of us were in school.

It is important to encourage children to think of themselves as mathematicians who can reason and solve problems. Mathematics is their key to the future. Research has shown that parents who show interest in mathematics have children who produce higher math scores on standardized tests. We know that not all parents have a *passion* for mathematics but there *are* some things you can do:

- Show your children that you like numbers. (No, not taxes and bills!) Play number games or puzzles, and search for numbers on license plates, road signs, and cereal boxes.
- Tell children anyone can learn math. Point out life math, such as measuring and cooking, estimation of time and expenses, gas and mileage, (setting the share your woes with balancing a checkbook!)
- Help children to do math in their heads with lots of small numbers. Ask questions: "If I have 4 cups and I need 7, what do I have to do?" or "If I need 12 drinks for the picnic, how many packages of 3 drinks will I need?"
- And you can support "*The Summer Math Packet*" ...

Why Summer Math Packets? Isn't it time to rest and relax?

First, parents have requested materials that students can do over the summer months. They haven't always been sure that commercial materials, such as those available in supermarkets, are good for their children. And they're right to question some of those materials. So, we have tried to save parents the time and trouble and expense by assembling materials for them.

Second, we have a need to improve our Connecticut Mastery Test scores. Each year, teachers, students, principals and administration, make a tremendous effort to improve scores. Though we cannot say that there was a direct relationship to the Summer Math Packets, *we do know that our scores have improved!* It is going to take this kind of effort to keep those scores up and getting them higher.

The Connecticut Mastery Test (CMT) is a barometer that is meant to ensure excellence in mathematics education. We know that the CMT, and therefore the textbooks, district goals, building plans, and student interests, all emphasize that students need to learn how to solve problems, reason, communicate mathematically, and connect their studies to other areas of mathematics, other subject areas, and the real world. You will see a shift towards mathematical ideas and concepts. Students are involved in mathematical problems that use a variety of tools and strategies that are mathematical. *There may or may not be just one right answer or solution. We have tried to vary the activities and questions to reflect a high interest and still cover the objectives of the Connecticut Mastery Test.*

Doing the packet is very important.....when your child returns to school at the end of the summer, his/her teacher will correct the contents. The packet is also used as one source of review to prepare for the CMT and the coming school year. Your child should get a *Certificate of Completion* for returning the packet. Hopefully, it will be completed to the best of your child's ability. More importantly, your child will have the confidence for the Connecticut Mastery Test and the mathematics to be learned that year and in the future.

Frequently Asked Questions and Answers

Question: What is the Connecticut Mastery Test?

Answer: The Connecticut mastery test (CMT) is a test by the Connecticut State department of Education to measure student achievement in mathematics, reading, and writing. To help your child do well on the math portion of the test, we have put together a summer packet that covers some of the objectives of the CMT.

Question: What will happen to the Summer Math Packet when the children return to school?

Answer: When your children return to school at the end of the summer, we expect to use these materials as one source to review for the CMT. Additionally, they will get a Certificate of Completion when they return it on the first day of school.

Question: What if I don't know the math or never found math to be my favorite subject?

Answer: We are asking you to encourage your children to think of themselves as mathematicians who can reason and solve problems. Mathematics is their key to the future. Parents who communicate the importance of mathematics to their children can help them develop confidence in their own math ability no matter what the parent's comfort level. We need you to support this packet.

Question: Isn't this a lot to expect in one summer? Do they have to do it all?

Answer: We do not expect students to do it all in one day! Or one sitting! Or the last week! Spread it out over the span of two summer months. You know your children best. We expect a good effort from your children to complete it and return with it.

Question: Can't we have an answer key?

Answer: We are interested in assessing what your children have actually learned and retained. The packet will be an important tool for the classroom teacher to design lessons appropriate for the needs of the children in the class. Therefore, focus in on the children's attempting the work to the best of his/her ability. The assessment will tell where the child is, so we really want it to be your children's work.

Helping at Home

Parents ask how they can help their children with mathematics at home. It can be hard not to "tell" your children how to do the math even if you want your children to figure it out for themselves. Some of the math may even look unfamiliar. But you can help by asking questions that guide your children without telling them what to do.

Good questions--and good listening--will help your children make sense of the mathematics, build their confidence, and encourage mathematical thinking and communication.

A good question opens up a problem and supports different ways of thinking about it. Here are some you might try notice that none of them can be answered with a simple "yes" or "no".

Getting Started

What do you know now?

What do you need to find out?

How might you begin?

While Working

How can you organize your information?

Can you make a drawing (model) to explain your thinking?

Are there other possibilities?

What would happen if ...?

Can you describe the approach (strategy) you're developing to solve this?

What do you need to do next?

Reflecting about the Solution

Is your solution (conclusion) reasonable?

How did you arrive at your answer?

Can you convince me your solution makes sense?

What did you try that didn't work?

Responding

Try to avoid stopping as soon as you hear the "right" answer. Responses like these give your children a chance to clarify their thinking.

Why do you think that?

Tell me more.

Can you explain that in a different way?

Key Mathematics Vocabulary Expected for the CMT

Grade 6

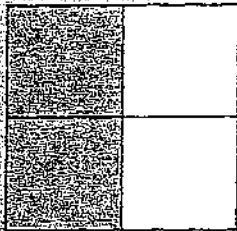
Add	Highest	Pound
Angle	Hour	Quadrilateral
Area	Hundreds	Quarter
Bar graph	Inch	Reasonable
Centimeter	Kilometer	Rectangle
Change (as in money)	Least	Round(ed)
Chart	Length	Set
Circle	Less	Shaded
Closest	Less than	Shape
Common attribute	Line of symmetry	Short
Congruent	Line segment	Shortest
Data	Longer	Side
Day	Longest	Spinner
Decimal	Measure	Square
Dime	Meter	Square centimeter
Divide	Mile	Square inch
Equal	Minute	Square unit
Equation	Mixed number	Square yard
Equilateral	Month	Story problem
Equivalent	More	Subtract
Estimate	More than	Symmetry
Expression	Multiple	Table
Farthest	Multiply	Tens
Fewer	Nearest	Thousands
Figure (as in geometric figure)	Nickel	Trapezoid
Foot	Number	Triangle
Fraction	Number line	Unreasonable
Fractional Part	Number sentence	Unshaded
Gallon	Ones	Value
Geoboard	Parallelogram	Venn diagram
Graph	Pattern	Week
Greatest	Penny	Weight
Grid	Pentagon	Yard
Hexagon	Perimeter	Year
	Pictograph	

DIRECTIONS

Read each question and determine the best answer.

SAMPLE A

What is another name for the shaded part of this picture?



- a $\frac{1}{4}$
- b $\frac{1}{3}$
- c $\frac{1}{2}$
- d $\frac{2}{3}$

SAMPLE B

Shade in $\frac{3}{5}$ of these shapes



1 Which means the same as $300 + 40$?

- a 304
- b 340
- c 344
- d 30,040

2 Which means the same as 702?

- f $7 + 0 + 2$
- g $70 + 2$
- h $700 + 2$
- j $700 + 20$

3 There were 352 students attending Eggert Elementary School in March. In April, 10 new students enrolled. How many students were attending the school after the new students enrolled?


- a 452
- b 362
- c 342
- d 252

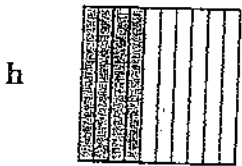
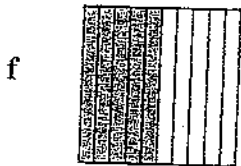
4 Martin has a paper route. He delivers a total of 221 papers each day. He already delivered 100 this morning. How many papers does Martin have left to deliver today?

- f 121
- g 211
- h 222
- j 321

CONCEPT: PICTORIAL REPRESENTATION OF NUMBERS


10 Which picture shows 0.4 shaded?

Each  = 0.1



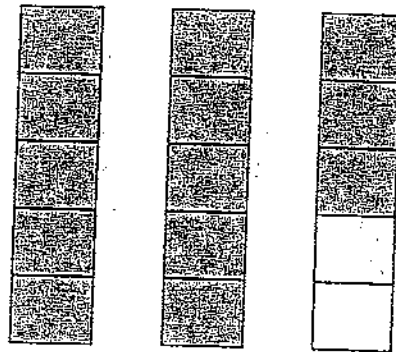
11 The shaded part of this picture shows which decimal number?



Each  = 0.1

- a 1.6
- b 1.5
- c 1.4
- d 1.1

12 The shaded part of these shapes shows which mixed number?



- f $10\frac{3}{5}$
- g $2\frac{13}{15}$
- h $2\frac{2}{3}$
- j $2\frac{3}{5}$

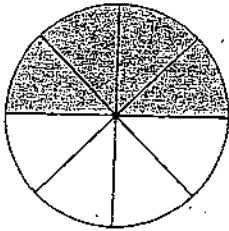
CONCEPT: RELATING PICTORIAL REPRESENTATIONS TO FRACTIONS

13 What is another name for the shaded part of this picture?



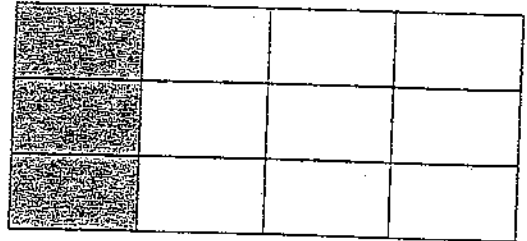
- a $\frac{1}{2}$
- b $\frac{1}{3}$
- c $\frac{1}{4}$
- d $\frac{1}{5}$

14 What is another name for the shaded part of this picture?



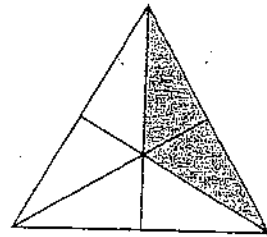
- f $\frac{1}{4}$
- g $\frac{1}{3}$
- h $\frac{1}{2}$
- j $\frac{1}{6}$

15 What is another name for the shaded part of this picture?



- a $\frac{1}{6}$
- b $\frac{1}{4}$
- c $\frac{1}{3}$
- d $\frac{1}{2}$

16 What is another name for the shaded part of this picture?



- f $\frac{1}{2}$
- g $\frac{1}{3}$
- h $\frac{2}{3}$
- j $\frac{1}{6}$

CONCEPTS: MODELS OF OPERATIONS/ ESTIMATION

17 William has 43 baseball cards in his collection, and Samantha has 75 baseball cards in her collection. Which could be used to find out how many MORE cards Samantha has than William?

- a Add 75 and 43
- b Subtract 43 from 75
- c Multiply 75 by 43
- d Divide 75 by 43

18 A farmer plowed 75 rows in the morning and 59 rows in the afternoon. Which could be used to find out how many total rows the farmer plowed?

- f Add 75 and 59
- g Subtract 59 from 75
- h Multiply 75 by 59
- j Divide 75 by 59

19 A teacher had 35 desks in her room. She wanted to put them into 5 groups. Which number sentence could be used to find out how many desks would be in each group?

- a $35 + 5 = \square$
- b $35 - 5 = \square$
- c $35 \times 5 = \square$
- d $35 \div 5 = \square$

20 Chandler Airlines owns 30 small planes. Each plane can hold 10 passengers. Which number sentence could be used to find out how many passengers the planes can hold all together?

- f $30 \times 10 = \square$
- g $30 \div 10 = \square$
- h $30 + 10 = \square$
- j $30 - 10 = \square$

21 Logan needs to multiply 612 by 587. Which of the following would be BEST for Logan to use to ESTIMATE the product?

- a 600×500
- b 600×600
- c 700×600
- d 700×700

22 Derek needs to divide 4860 by 53. Which of the following would be BEST for Derek to use to ESTIMATE the quotient?

- f $4000 \div 50$
- g $4000 \div 60$
- h $5000 \div 50$
- j $5000 \div 60$

23 Daniel went to the supermarket with \$17.25. He spent \$11.94. Which of the following would be BEST for Daniel to use to ESTIMATE his change?

- a $\$17 - \11
- b $\$17 - \12
- c $\$18 - \11
- d $\$18 - \12

24 Sonya needs to add 2216 and 4852. Which of the following would be BEST for Sonya to use to ESTIMATE the sum?

- f $2000 + 5000$
- g $2000 + 4000$
- h $3000 + 5000$
- j $3000 + 3000$

CONCEPTS: WHOLE NUMBER AND DECIMAL COMPUTATIONS

29 Solve this problem.

$$20 \div 4 =$$

30 Solve this problem.

$$6 \times 10 =$$

31 Solve this problem.

$$7 \times 4 =$$

32 Solve this problem.

$$27 \div 3 =$$

33 Solve this problem.

$$\begin{array}{r} 194 \\ + 207 \\ \hline \end{array}$$

34 Solve this problem.

$$\$8.07 - \$4.76 =$$

35 Solve this problem.

$$\begin{array}{r} 993 \\ - 485 \\ \hline \end{array}$$

36 Solve this problem.

$$\$6.47 + \$2.88 =$$

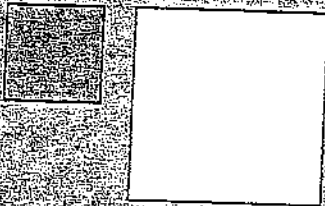
CONCEPT: TABLES, GRAPHS, & CHARTS

DIRECTIONS

Read each question and determine the best answer.

SAMPLE A

ABOUT how many shaded shapes would fill the unshaded shape?



- a 1
- b 2
- c 3
- d 4

SAMPLE B

Solve this problem.

Miguel took \$8.00 to a baseball game. While he was there he spent \$3.00 on popcorn. How much money did he have left?

- 37 There were 3254 people at a concert. This number is ABOUT
- a 2000
 - b 3000
 - c 4000
 - d 5000

- 37 The table shows the year for the development of 4 inventions.

Inventions

Year	Type
1785	Parachute
1939	Helicopter
1895	Diesel Engine
1885	Bicycle

Which of these inventions was invented second?

- f Parachute
- g Helicopter
- h Diesel Engine
- j Bicycle

- 37 The total score each member of a gymnastics team earned in a competition is shown below.

Gymnastic Scores

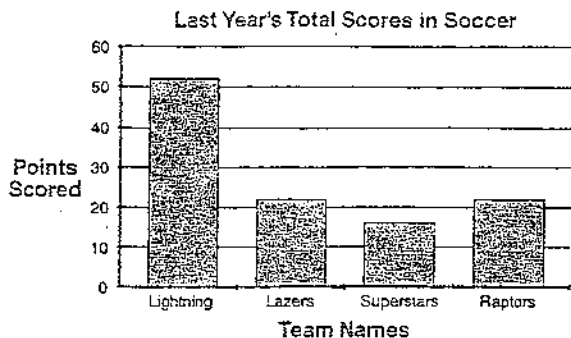
Name	Total Score
Carole	21.3
Barbara	33.2
Lucy	31.9
Sandra	29.8

Which member had the HIGHEST score?

- a Carole
- b Barbara
- c Lucy
- d Sandra

CONCEPT: IDENTIFYING CORRECT INFORMATION

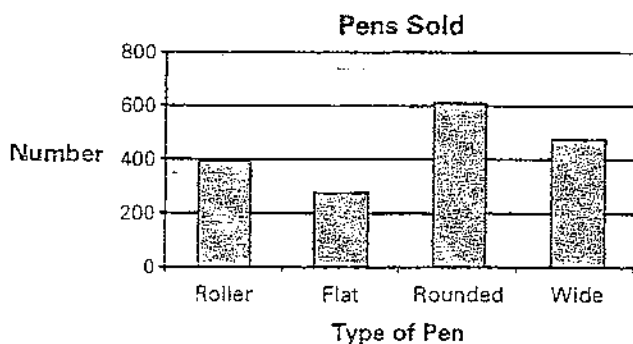
40



Based on the information in the graph above, how many teams scored MORE than 20 points last season?

- f 1
- g 2
- h 3
- j 4

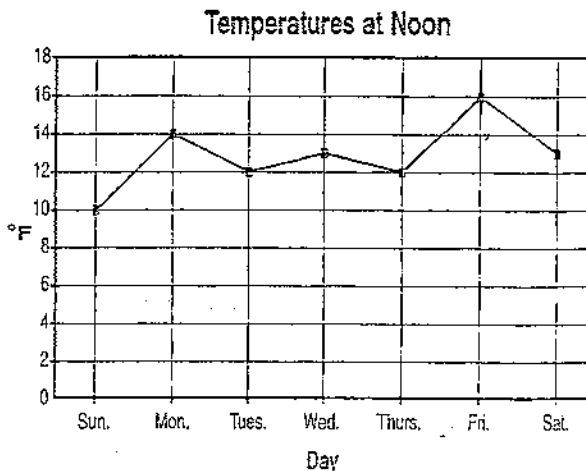
41 This graph shows the types of pens sold by a company in one month.



Which statement about this graph is true?

- a The company sold more flat pens than wide pens.
- b The company sold more roller pens than rounded pens.
- c Most of the pens sold were either rounded or wide.
- d Most of the pens sold were either flat or roller.

42 Jamie recorded the temperature in Fahrenheit at noon each day for one week in the winter. He made a LINE graph to show this information.



Which statement about this graph is true?

- f The highest noon-time temperature was on Monday.
- g The noon-time temperature on Tuesday was the same as the noon-time temperature on Thursday.
- h The noon-time temperature on Monday was 5 degrees more than on Sunday.
- j The lowest noon-time temperature was on Wednesday.

CONCEPT: PATTERNS

- 43 This chart shows the number of flights made by four airplanes this month.

Flights

Airplane	Number of Flights
A	18
B	26
C	13
D	30

Which statement about this chart is true?

- a Airplane C made the most flights.
- b Airplane A made the least flights.
- c Airplane B made twice as many flights as airplane C.
- d Airplane D made twice as many flights as airplane A.

- 44 The table shows the starting and ending times for the events in a gymnastics meet.

Gymnastics Results

Starting Time	Event	Ending Time
9:30 A.M.	Uneven Bars	9:55 A.M.
10:15 A.M.	Balance Beam	10:45 A.M.
11:00 A.M.	Floor Exercise	12:15 P.M.
12:25 P.M.	Vault	1:15 P.M.

Which event lasted the LONGEST?

- f Uneven Bars
- g Balance Beam
- h Floor Exercise
- j Vault

- 45 The numbers follow a pattern.

1050, 1025, 1000, 975, _____

Which number should be next in the pattern?

- a 900
- b 925
- c 950
- d 1000

- 46 The numbers follow a pattern.

3, 6, 12, 24, _____

Which number should be next in the pattern?

- f 36
- g 48
- h 54
- j 63

CONCEPT: PROBLEM SOLVING

Solve this problem.

- 47 The library had 75 employees working on Monday morning. At lunch time 19 employees left. How many employees were left at the library during lunch?
-

48 Solve this problem.

Billy's dog spent 4 nights at a kennel. The kennel charged \$20 for each night the dog stayed there. How much did Billy have to pay the kennel in all?

49 Solve this problem.

Before Tom drove to Boston, he put 6 gallons of gas in his car. The gas cost \$7.26. He gave the clerk a \$10.00 bill. How much change should he receive?

50 Solve this problem.

Jacob took \$15.00 with him to the mall. While he was there he spent \$3.50 on video games and \$4.25 on lunch. How much did he spend at the mall all together?

CONCEPT: GEOMETRY AND MEASUREMENT

51 Juan studied for his math test from 4:30 P.M. until 6:15 P.M. How long did he study for his math test?

- a 1 hour and 15 minutes
- b 1 hour and 45 minutes
- c 2 hours and 15 minutes
- d 2 hours and 45 minutes

52 The thickness of a book is BEST measured in

- f inches.
- g feet.
- h miles.
- j yards.

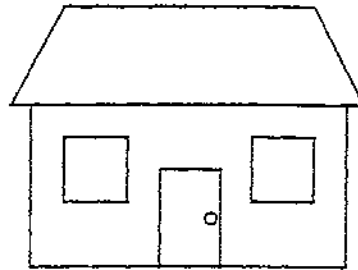
53 The height of a building is BEST measured in

- a meters.
- b centimeters.
- c kilometers.
- d liters.

54 Which figure does NOT have exactly 4 sides?

- f Trapezoid
- g Square
- h Hexagon
- j Rectangle

55 What is the shape of the roof in this drawing?



- a Triangle
- b Pentagon
- c Hexagon
- d Trapezoid

56 Peter, Joaquin and Kim ate some chocolates.

- Peter ate fewer chocolates than Kim.
- Joaquin ate the most chocolates.

Who ate the FEWEST number of chocolates?

- f Peter
- g Joaquin
- h Kim
- j Need more information

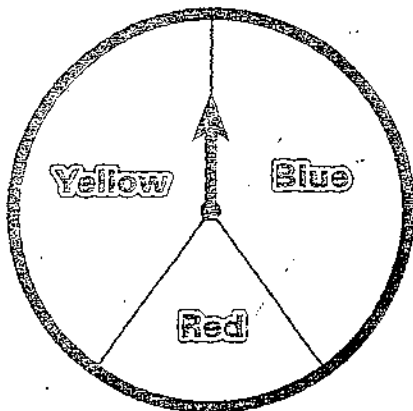
CONCEPT: PROBABILITY

57 Jeff, Yasmine and Heather sold rolls of wrapping paper for a fundraiser.

- Jeff sold more than Heather did.
- Yasmine sold less than Jeff did.

Who sold the LEAST number of rolls of wrapping paper?

- a Jeff
- b Heather
- c Yasmine
- d Need more information

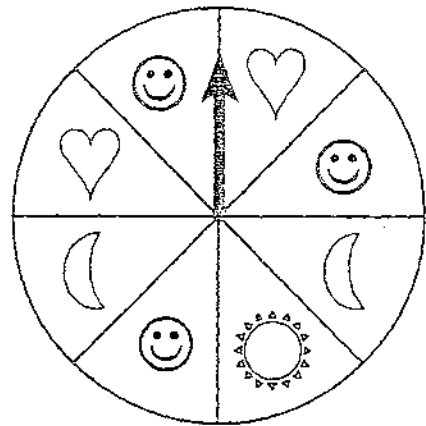


58 Maris, Tom and Jane take turns spinning this spinner. Tom spins first. If the arrow lands on red, Maris gets a point. If it lands on blue, Tom gets a point. If it lands on yellow, Jane gets a point. Is this game fair?





- f Yes, because there are 3 people and 3 colors.
- g No, because Tom spins first.
- h Yes, because all the outcomes are equally likely to occur.
- j No, because the red area is smaller than the yellow area and the blue area.

59 A bag contains 2 red marbles, 3 green marbles, 1 white marble and 2 blue marbles. If Joe picks a marble from the bag without looking, which color is LEAST likely to be picked?

- a Red
- b Green
- c White
- d Blue



60 If Martha spins this spinner once, on which shape is the arrow LEAST likely to land?

- f 
- g 
- h 
- j 

CONCEPT: WRITE A STORY PROBLEM

**Pencils cost 2 for 25¢
Erasers cost 10¢ each
Beth has \$1.00**

- Write a Question**
- Can your question be solved?**
- Does your question have more than one answer?**

**I have some pennies, nickels
and dimes in my pocket.**

**I put 3 of the coins in my
hand.**

**How much money do you
think I have in my hand?**

CONCEPT: MATH APPLICATIONS

THE AMUSEMENT PARK

The 4th and 2nd graders in your school are going on a trip to Wonderland Amusement Park. Each 4th grader is going to be a buddy to a 2nd grader.

Your buddy for the trip has never been to an amusement park before. Your buddy wants to go on as many different rides as possible. Unfortunately, there may not be time to go on every ride and you may not have enough tickets to go on every ride. So you and your buddy need a plan for the day.

The bus will drop you off at the amusement park at 10:00 a.m. and pick you up at 1:00 p.m. Each student will get 20 tickets for rides. You may also want to plan some time for the box lunch you're bringing.

The chart shows how much time and how many tickets you need for each ride. Use this information to plan a fun day at the amusement park for you and your buddy.

<u>RIDE</u>	<u>TIME</u>	<u>TICKETS</u>
Roller Coaster	45	4
Ferris Wheel	25	3
Bumper Cars	15	2
Rocket Ride	40	4
Merry-Go-Round	10	2
Water Slide	30	4
Fun House	20	3