Breakfast Buddies

Four neighbour girls meet at one another's houses for breakfast on Thursday mornings before school. Last Thursday, they had cereal squares and fruit. Use the clues to determine how many cereal squares and how many pieces of fruit each person consumed for breakfast.

Clues:

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1. Cass had ⅓ as many fruit pieces as she had cereal squares.
2. Dominique had three fewer fruit pieces than Suzette.
3. Suzette had ½ as many fruit pieces as she had cereal squares.
4. Elianna had three fewer fruit pieces than Cass.
5. Dominique had ⅓ as many fruit pieces as she had cereal squares.

	Cass	**Dominique**	**Elianna**	**Suzette**
Cereal	18 squares 24 squares 27 squares 30 squares	18 squares 24 squares 27 squares 30 squares	18 squares 24 squares 27 squares 30 squares	18 squares 24 squares 27 squares 30 squares
Fruit	3 banana slices 6 strawberries 9 raisins 12 blueberries	3 banana slices 6 strawberries 9 raisins 12 blueberries	3 banana slices 6 strawberries 9 raisins 12 blueberries	3 banana slices 6 strawberries 9 raisins 12 blueberries

From Math Bafflers, Grades 3-5 - Marilyn L. Rapp Buxton

Challenging Math Questions

1. The numbers 24, 36, 54, 60, and 72 are all multiples of

    a) 6
    b) 8
    c) 12
    d) 18

2. The time is now 8:42. What time will it be in 2 hrs and 29 minutes

    a) 10:11
    b) 10:71
    c) 11:01
    d) 11:11

3. On Monday I ate one grape. Each day I ate twice as many grapes as the previous day. How many grapes in total did I eat from Monday to Friday?

    a) 16
    b) 31
    c) 32
    d) 63

4. Which of the following numbers is the largest?

    a) 5/2
    b) 6/3
    c) 2.05
    d) 2.15

5. The product of two whole numbers is 24. Which of the following cannot possibly be the sum of the two numbers?

    a) 10
    b) 11
    c) 12
    d) 14

Jewelry Jinx

Directions:

Mr. Daniels was getting ready to open his jewelry store one morning when an alarm went off on a car outside his shop, frightening him so much that he dropped the whole tray of rings he was carrying to the display case. The price tags on all of the rings as seen in the table) fell off as they dropped to the floor. Mr. Daniels did not have a record of the prices he was charging for each ring; he only had the following clues:

- Ring A had a digit in the ones place that was 10 times greater than the digit in the tens place for Ring C.
- Ring E had a digit in the tens place that was 10 times greater than the digit in the ones place for Ring G and 10 times less than the digit in the hundreds place for Ring C.
- Ring D had a digit in the ones place that has the same value as the digit in the ones place of Ring G.
- Ring A and Ring B have the same value in the ones place. Ring A and Ring F have the same value in the tens place. Ring C has a digit in the ones place that is 10 times less than the digit in the tens place for Ring F and 100 times less than the digit in the thousands place in Ring D.

Price Tags for Rings

$3,215	**$531**	**$523**	**$153**	**$32**	**$15**	**$2**

1. Using the clues and the prices in the table, match the rings to the correct price.
    a) Ring A: _____
    b) Ring B: _____
    c) Ring C: _____

d) Ring D: _____

e) Ring E: _____

f) Ring F: _____

g) Ring G: _____

2. Help Mr. Daniels organize his rings to best place them in his display case according to value. Use the following symbols (>, <, or =) to help him order his rings from least expensive to most expensive.

Extend your Thinking

When Mr. Daniels was putting away his items at the end of the day, he accidentally spilled his water on the price tags for his rings, causing all of the ink to blur. Because all of the price tags are now illegible, he needs to create new price tags. Mr. Daniels is OK with this because he has wanted to raise his prices anyway. Work to create a new set of price tags that would raise the prices of each ring while allowing the cluse to still work for each.

a. Ring A: _____

b. Ring B: _____

c. Ring C: _____

d. Ring D: _____

e. Ring E: _____

f. Ring F: _____

g. Ring G: _____

Curious Number

Are you curious about numbers? Can you use your mathematical skills to find some solutions to the problems below?

Can you order the digits 1, 2 and 3 to make a number which is divisible by 3? And when the final digit is removed again it becomes a two-digit number divisible by 2, then finally a one-digit number divisible by 1?

Can you order the digits 1, 2, 3, and 4 to make a number which is divisible by 4? And when the final digit is removed it becomes a 3-digit number which is divisible by 3. And when the final digit is removed again it becomes a two-digit number divisible by 2, then finally a one-digit number divisible by 1?

Can you order the digits 1,2,3,4 and 5 to make a number which is divisible by 5? And when the final digit is removed it becomes a four-digit number which is divisible by 4. And when the final digit is removed it becomes a three-digit number which is divisible by 3. And when the final digit is removed again it becomes a two-digit number divisible by 2, then finally a one-digit number divisible by 1?

What do you know about numbers which can be divided by 3, 4, 5?

Now what about taking this further for digits 1, 2, 3, 4, 5, and 6?

What do you know about numbers which can be divided by 6, 7, 8 and 9?

From website: nrichmaths.org

Reach 100

Here is a grid of four “boxes”:

You must choose four **different** digits from 1-9 and put one in each box. For example:

5	**2**
1	**9**

This gives four two-digit numbers:

52 (reading along the 1st row)

19 (reading along the 2nd row)

51 (reading down the left hand column)

29 (reading down the right hand column)

In this case their sum is 151.

Try a few examples of your own.

Is there a quick way to tell if the total is going to be even or odd?

Your challenge is to find four different digits that give four two-digit numbers which add to a total of 100.

How many ways can you find of doing it?

Challenging Math Questions

1. Alan works 8 hours a day for 5 days per week. If he earns $880 per week, how much does he make per hour?

    a) $20
    b) $22
    c) $110
    d) $172

2. What is the difference between the smallest 5-digit number and the largest 3-digit number?

    a) 901
    b) 1000
    c) 9000
    d) 9001

3. Mr. and Mrs. Nguyen have two sons. Every son has exactly three sisters. How many people are there in the family?

    a) 5
    b) 7
    c) 8
    d) 10

4. 30 years ago Amy was half as old as she is today, how old will she be 10 years from now?

    a) 25
    b) 55
    c) 60
    d) 70

5. (2018 + 2019 + 2020 + 2021 + 2022) / 5 =

    a) 2019
    b) 2020

c) 2021
d) 2025

6. The current year is 2019. How many years will it be before the sum of digits in the year is greater than it is the year? (Note: for the year 1992 the sum of the digits is 1 + 9 + 9 + 2 = 21)

   a) 1 year
   b) 5 years
   c) 10 years
   d) 90 years

7. A candy store is having a sale: buy four and get one for free. If one candy costs 25 cents, how many candies can you buy with $12?

   a) 48
   b) 60
   c) 64
   d) 72

8. Jason has a brother and a sister. From a box of candies, all three of them eat a piece of candy on the first day. Jason eats one candy every day, his brother eats one candy every other day and his sister eats one candy every three days. By the end of the 12th day, how many candies have been eaten by all three of them?

   a) 19
   b) 21
   c) 22
   d) 72

The Dog Days of Summer

Summer Fitzpatrick loves her dog, Sunshine. She especially likes spending extra time with Sunshine during summer vacation from school. Although Summer does not watch television every day, summer vacation is a great time for her to catch up on watching some of her favorite cartoon shows. Guess what appears in her favorite cartoons - yes, dogs! Read each clue to see if you can match each celebrity dog with the time of day that it appears in one of Summer's favorite cartoons.

Clues:

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1. Snoopy appears earlier in the day than Pluto does.
2. Summer almost always eats breakfast sometime between 7:30 a.m. and 9:30 a.m.
3. Scooby-Doo is never on TV during Summer's breakfast.
4. Snoopy and Odie are never seen on a 10:00 a.m. cartoon show.
5. Odie is on a cartoon show earlier in the day than Snoopy's show.
6. Summer almost always eats dinner sometime between 5:00 p.m. and 7:00 p.m.
7. Sometimes Summer watches Scooby-Doo or Underdog while eating dinner.
8. Underdog can be seen later in the day than Scooby-Doo.

Odie	Pluto	Scooby-Doo	Snoopy	Underdog
8:00-9:00 a.m.	8:00-9:00 a.m.	8:00-9:00 a.m.	8:00-9:00 a.m.	8:00-9:00 a.m.
8:30-9:30 a.m.	8:30-9:30 a.m.	8:30-9:30 a.m.	8:30-9:30 a.m.	8:30-9:30 a.m.
10:00-10:30 a.m.	10:00-10:30 a.m.	10:00-10:30 a.m.	10:00-10:30 a.m.	10:00-10:30 a.m.
4:30-5:30 p.m.	4:30-5:30 p.m.	4:30-5:30 p.m.	4:30-5:30 p.m.	4:30-5:30 p.m.
5:30-6:00 p.m.	5:30-6:00 p.m.	5:30-6:00 p.m.	5:30-6:00 p.m.	5:30-6:00 p.m.

From Math Bafflers, Grades 3-5 - Marilyn L. Rapp Buxton

Let's Plan a Trip!

Directions: You want to convince your principal to take your grade level on a field trip. You can go anywhere in the country on your field trip. You need to research some information to present to your principal. The following items will help prepare you for your meeting with the principal.

Destination: _____

1. First, you need to determine how many km it is to your destination. Research this using google maps. If you can only travel 500 km a day, determine how many days this trip will take to travel there and back.

2. You need to charter buses that sit 52 people each. Determine the number of buses needed if all of the students in your grade, parents of half of the students, and one teacher for each class attends. (pretend there are 68 students in your grade in the school).

3. Each student and teacher will need a field trip shirt. Your school does not want to spend more than $6000 on these shirts. If each student and teacher need a shirt, determine an estimated price for each shirt.

4. Each child and adult (parents and teachers attending) will need to eat. The school doesn't want to spend more than $4,000 on these meals. Approximately how much should each meal cost?

Extend your Thinking

1. If the school splits the field trip into three different trips, how much would each trip cost? Would this be better than taking everyone at once? Explain.

New Kids on the Block

Five neighbors have moved to Rose Valley within the past 6 years. Each one is a different age, and each has lived in Rose Valley a different length of time. Use the clues to determine each child's age and how long he or she has lived in Rose Valley.

Clues:

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1. Joshua is twice as old as Camryn.
2. Joshua has lived in Rose Valley half as long as Petra.
3. Lydia is half as old as Ozzie, and Ozzie is half as old as Petra.
4. Ozzie has lived in Rose Valley half as long as Lydia.
5. Petra has lived in Rose Valley 3 years longer than Joshua, who has lived in Rose Valley 1 year longer than Lydia.

	Camryn	**Joshua**	**Lydia**	**Ozzie**	**Petra**
Age in Years	4 6 8 12 16	4 6 8 12 16	4 6 8 12 16	4 6 8 12 16	4 6 8 12 16
Years in Rose Valley	1 2 3 4 6	1 2 3 4 6	1 2 3 4 6	1 2 3 4 6	1 2 3 4 6

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Three Neighbours

Take three numbers that are ‘next door neighbours’ when you count. These are called consecutive numbers.

Add them together.

What do you notice?

Take another three consecutive numbers and add them together.

What do you notice?

Can you prove that this is always true by looking carefully at one of your examples?

Questions from the World Mathematical Olympiad 2018 Canada Questions Gr. 4

1. If Mr. Smith started building his house 6 days after 5 days before 9 days after 4 days before 4 days after 2 days before the day before January 14th 2002, on what day did he start building his house?

    a) January 14th
    b) January 20th
    c) January 7th
    d) January 21st

2. Mario's last day of math class before March break was Thursday, March 6th. His first day back after the break was March 28th. If he didn't do any of his homework over the break, for how many weeks did he not do any of his math work?

    a) 2
    b) 4
    c) 3
    d) 2.5

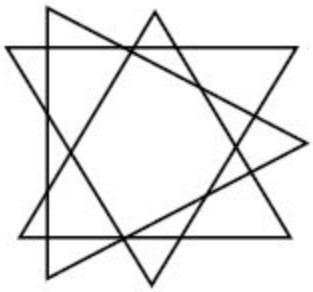
3. Fran's Flower Emporium was closing for the season. All of the flowers had either 3 petals or 5 petals left on them. If Fran counted 20 flowers and 70 petals, how many flowers had only 3 petals left?

    a) 5
    b) 8
    c) 15
    d) 20

4. What comes next in the sequence: 2, 5, 10, 17, 26…

    a) 30
    b) 35
    c) 37
    d) 38

5. How many triangles of all sizes are there?



    a) 20
    b) 18
    c) 28
    d) 24

6. A log 45 meters long is cut into thirds, and each piece is then cut into thirds again. How long is each piece?

    a) 7.5 m
    b) 5
    c) 10
    d) 15

7. There is a fence in the shape of an equilateral triangle with each side 15 meters long. Bob wants to put lights every 5 meters, how many lights does he need?

    a) 10
    b) 6
    c) 9
    d) 15

8. Five years ago Gita was three times the age of his cousin Dilip. If Dilip is 8 years younger than Gita now, how old is Gita now?

    a) 13 years
    b) 16 years
    c) 17 years
    d) 36 years

9. If I double a number and divide the result by 8, the quotient is 32. Find the number.

    a) 128
    b) 4
    c) 80
    d) 16

10. On Fruity Tree Lane, 14 of the houses have 2 cherry trees on their front lawn. If there are 12 houses on Fruity Tree Lane, how many cherry trees are there?

a) 8
b) 4
c) 6
d) 3

11. If 3 students wrote a test and scored 75%, what score will the fourth person need to bring the class average up to 80%?

a) 87.5 %
b) 90 %
c) 92.5 %
d) 95 %

12. At Popular Paul's party, he set out chairs (four legs) and stools (three legs) for his friends to sit on. If he counted 13 seats and 44 legs altogether, how many three-legged stools were there?

a) 6
b) 9
c) 5
d) 3

13. Nathan is driving his car down the road from his house to favourite restaurant. Nathan's house to the restaurant is 60 km, and the drive has three different speed limits: the first 20 km has a speed limit off 20 km/hr, the second is 20 km with a speed limit of 40 km/hr, and the third is 20 km with a speed limit of 20 km/hr. If Nathan followed all speed limits, what is his average speed?

a) 26 km/hr
b) 24 km/hr
c) 28 km/hr
d) 30 km/hr

14. What is the probability of throwing a sum of 11 with one throw of two fair dice?

a) 1/18
b) 1/36
c) 1/12
d) 1/4

15. How many different ways can you make $0.25 using pennies, nickels, dimes and/or quarters? (You may use all, none, or some of each type of coin.)

a) 1
b) 5
c) 10
d) 13