

Appendix A

Following is the mathematical questions given to the students of each grade.

Year 3

- (1) There are 9 crayons in a box. If you have 3 boxes, how many crayons do you have in total?
 - (2) A bag of candy has 50 pieces. If 17 pieces are taken out of the bag, how many pieces are left in the bag?
 - (3) If a pizza has 8 slices, how many slices are there in 4 pizzas?
 - (4) If a toy store has 20 toy cars and each toy car costs \$3, how much money will you need to buy all the toy cars?
 - (5) A bakery has sold 24 cupcakes in the morning. If they sell 16 more cupcakes in the afternoon, how many cupcakes have they sold in total?
 - (6) A family has 4 people. If they have 3 guests over for dinner, how many people are there in total?
 - (7) Look at the following numbers: 2, 4, 6, 8, _____. What is the next number in the pattern?
 - (8) Look at the following numbers: 1, 3, 6, 10, _____. What is the next number in the pattern?
 - (9) A pencil costs £1 and a notebook costs £2. What is the total amount for buying 5 pencils and 3 notebooks?
 - (10) Tiffany had to complete 2 pages of homework. Each page had 9 problems on it. How many problems did she have to complete total?
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Year 4

- (1) If it takes 3 apples to make a pie and you have 15 apples, how many pies can you make?
- (2) What is the next number in the sequence: 1, 4, 7, 10,...
- (3) What is the missing number in the equation: $8 + \underline{\quad} = 15$
- (4) A bakery has 6 trays of cupcakes. Each tray has 6 cupcakes. How many cupcakes are there in total?
- (5) Sara needs 30 pencils. Each box of pencils contains five pencils. How many boxes does she need to buy?
- (6) David bought 4 pens each for £1, 3 notebooks each for £2 and a book for £2. How much did he pay in total?
- (7) If a pizza has 8 slices, and 4 people will share it, how many slices will each person get?
- (8) My starting number is 5

My term to term rule is +4

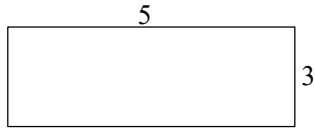
Write the first 5 numbers in the sequence.

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- (9) Write a different number in each box to make this statement correct.

$$\frac{\quad}{8} + \frac{5}{8} + \frac{\quad}{8} = \frac{9}{8}$$

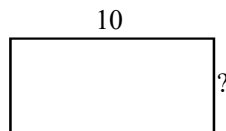
- (10) Here is a rectangle.



A larger rectangle is made using three of the same rectangles. Calculate the perimeter of the larger rectangle.

Year 5

- (1) 1 box contains 10 red balls and 20 blue balls. What fraction of the total number of balls is blue?
- (2) A baker needs to make 60 cookies. He has already made 30. How many more cookies does he need to make?
- (3) If a pizza costs \$12 and you have \$48, how many pizzas can you buy?
- (4) The perimeter of a rectangle is 28 units. If the length is 10 units, what is the width of the rectangle?



- (5) John has 12 toy cars and his friend has 8. How many toy cars do they have together?
- (6) Sofia has a counter. It is black on one side and white on the other. She tosses her counter. The counter lands with the white side up. She says: If I toss the counter again, it will land black side up because last time it landed white side up.

Tick (☐) to show if Sofia is correct. Yes No, Explain how you know.

- (7) Here is part of a sequence. 0, 25, 50, ..., 100, ...

The sequence continues in the same way. Write the missing numbers.

- (8) A store has 100 toys in stock and sells 20 each day. How many days will it take for the store to sell all of the toys?
- (9) A gallon of milk costs \$3. How much will it cost to buy 3 gallons of milk?
- (10) A rectangle has a length of 15 units and a width of 12 units. What is the perimeter of the rectangle?
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Year 6

- (1) A pack of gum contains 20 pieces, and you have 4 packs. How many pieces of gum do you have in total?
- (2) A gallon of milk costs \$4. How much will it cost to buy 5 gallons of milk?
- (3) The perimeter of a square is 36 units. What is the length of each side of the square?
- (4) A store has 150 toys in stock and sells 25 each day. On the first day, the store also received a shipment of 50 toys. How many toys will the store have in stock after 3 days?
- (5) A book has 300 pages and you read 40 pages each day. How many days will it take you to finish the book, and how many pages will you have left over?
- (6) A store is selling pencils for \$1.75 each. How much will it cost to buy 12 pencils, and how much change will you receive if you give the store \$20?
- (7) If a clock shows 7:00, what time will it be in 13 hours?

- (8) A school library has a total of 1,500 books. On Monday, the library received 300 new books, and on Tuesday, it received another 200 books. How many books does the library have now? If the library lent 200 books on Wednesday and 300 books on Thursday, how many books does it have on Friday?
- (9) A number increased by 7 is equal to 40. What is the number?
- (10) A gardener has 90 plants, 45 of which are roses. What fraction of the plants are roses?
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Year 7

- (1) A cuboid has a length of 8 cm, a width of 5 cm, and a height of 4 cm. What is the volume of the cuboid?
- (2) A machine can produce 60 items in 2 hours. How many items can it produce in 8 hours?
- (3) Understand the problem: A rectangular garden has a length of 12 meters and a width of 8 meters. If a path around the garden takes up 2 square meters, what is the area of the garden without the path?

- (4) Here is a function machine.



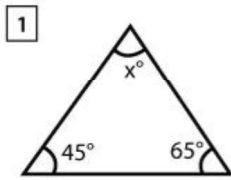
- a) Find the output when the input is -9
- b) Find the input when the output is 32
- (5) Here are the first four terms in a sequence.

6, 1, -4, -9...

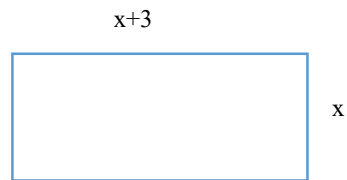
- a) Write down the next two terms in the sequence.
- b) Describe the term-to-term rule for the sequence.

(6) Work out. $0.35 \times 6 \times 15 + 1.65 \times 3 \times 30$

(7) Find x .

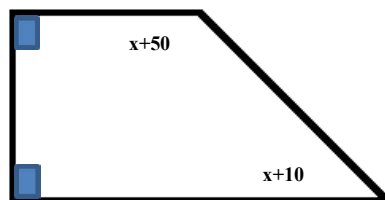


(8) The perimeter of following rectangle is 38cm. form an equation and find Length and Width.



(9) Sarah is x years old. Thomas is 3 years older than Sarah. David is twice as old as Sarah. The total of their ages is 51. Find all their ages.

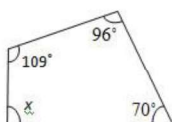
(10) Shown is a trapezium. Calculate the size of the largest angle in the trapezium.



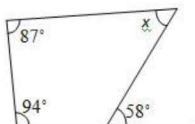
Year 8

- (1) A store is having a 20% off sale. If a shirt is priced at \$25, how much will it cost during the sale?
- (2) A gardener has 20 rose bushes. If he wants to plant them in rows with an equal number of bushes in each row, what is the maximum number of rows he can create?
- (3) A company makes a profit of \$75 for every unit of product sold. If the company wants to make a profit of \$1500, how many units of product must it sell?
- (4) The sum of two numbers is 28. If one number is 4 more than the other, what are the two numbers?
- (5) Calculate the value of x for the following figures:

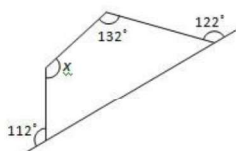
a)



b)



c)



- (6) The length of a rectangular field is three times its width. The perimeter of the field is 840 square meters. What is the area of the field?
- (7) A train travels a distance of 480 kilometres in 8 hours. At this rate, how far will it travel in 12 hours?
- (8) Two numbers have a product of 56 and a sum of 18. What are the numbers?
- (9) An electrician charges his clients £40 per hour plus £20 for a call fee. How much he charges for a job that lasts 2.5 hours?
- (10) A bus departed from New York at 11 pm with 44 passengers. An hour later, a few passengers got off at New Jersey. The number of passengers who boarded the bus at New Jersey were twice the number of passengers who got off the bus. If the bus has 50 passengers now, how many passengers got off at New Jersey?
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Year 9

- (1) Solve the simultaneous equations. Show your work.

$$7x + y = 50$$

$$4x + y = 23$$

- (2) A microwave oven normally costs \$160. In a sale, there is a discount of 15%. Work out the sale price of the microwave oven.
- (3) A ladder 12 meters long is leaning against a wall. The base of the ladder is 5 meters from the wall. How far up the wall does the ladder reach?

- (4) A rectangular box has a volume of 96 cubic centimeters. If the length of the box is 6 cm and the height is 4 cm, what is the width of the box?
- (5) A cylindrical tank has a radius of 6 meters and a height of 10 meters. If the tank is filled with water to a depth of 8 meters, what is the volume of water in the tank?
- (6) A company pays its employees \$10 per hour for the first 40 hours of work and \$15 per hour for any additional hours. If an employee works 50 hours, how much money does the employee make?
- (7) A car travels 60 km/h for the first half of a trip and 80 km/h for the second half of the trip. If the trip is 600 km in total, how long does it take the car to complete the trip?
- (8) A car travels 400 km in 5 hours. If the car's speed is constant, what is the distance the car travels in 3 hours?
- (9) The area of a rectangle is 119 cm^2 . The length of the shorter side of the rectangle is $(5x + 2)$ cm. The longer side of the rectangle is 7 cm. Find the value of x .
- (10) A company produces 500 units of a product at the cost of \$10 per unit. The company sells the product for \$20 per unit. What is the profit for the company?