

## Year 5 Term 4 Homework

<b>Student Name:</b> _____	<b>Grade:</b> _____
<b>Date:</b> _____	<b>Score:</b> _____

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# 4 Year 5 Term 4 Week 4 Homework

## 4.1 Topic 1 — Rate

### Exercise 4.1.1

1. A train covers 48 km in 25 minutes. How far will it go in  $1\frac{3}{4}$  hours?

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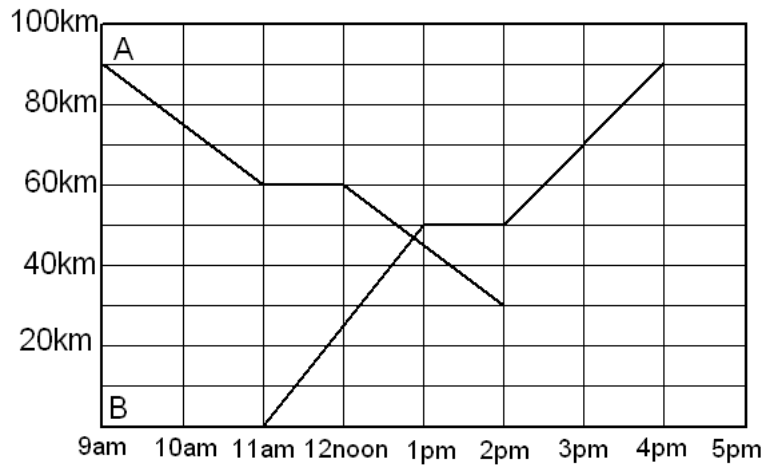


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2. The travel graph below shows a cyclist and a marathon runner who are on the same road between towns A and B. The marathon runner leaves town A at 9 a.m. towards town B, while the cyclist leaves town B at 11 a.m. towards town A.



(a) Find the average speed of the cyclist for the journey .

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(b) If the runner stops for one hour again at 2pm and competes the run at the same speed, at what time will the runner reach town B?

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(c) Find the average speed of the marathon runner for the whole journey.

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## 4.2 Topic 2 — Percentage

### Exercise 4.2.1

1. Express the following as a percentage:

(a) 0.12 \_\_\_\_\_

(b) 1.12 \_\_\_\_\_

(c) 0.02 \_\_\_\_\_

(d) 1.02 \_\_\_\_\_

(e)  $\frac{3}{10}$  \_\_\_\_\_

(f)  $\frac{23}{25}$  \_\_\_\_\_

(g)  $1\frac{1}{4}$  \_\_\_\_\_

(h)  $\frac{1}{25}$  \_\_\_\_\_

2. Find the interest earned on the following investments:

(a) \$500 at 16.4% p.a for 2 years. \_\_\_\_\_

(b) \$25,000 at 12.5% p.a. for 5 years. \_\_\_\_\_

(c) \$1,200 at 15% p.a. for 3 years. \_\_\_\_\_

3. Decrease 180 by 50% . \_\_\_\_\_

4. Find 15% of 60 . \_\_\_\_\_

5. What percentage is a mark of 34 out of 40? \_\_\_\_\_

6. Decrease \$140 by 35%. \_\_\_\_\_

7. If 20% of a number is 12. Find the number. \_\_\_\_\_

8. In a test of 60 students, 85 % passed. How many students failed the test?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

9. Joe obtained 75 out of 120 marks in his maths test. What percentage was this?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**4.3 Topic 3 — Simultaneous Equations****Exercise 4.3.1**

1. Solve the following simultaneous equations:

(a)  $3X + 4Y = 25$

$$4X + 3Y = 24$$

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(b)  $2X + 6Y = 32$

$$4X - 3Y = 7$$

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(c)  $X + 2Y = 13$

$$5X + 7Y = 50$$

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2. I have twice as many 5c coins as 20c coins. The total value of all my 5c and 20c coins is \$4.50. How many 5c coins do I have?

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3. I have 20 coins consisting of 5c and 20c coins. The total value of the coins is \$2.05. How many of each kind do I have?

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### 4.4 Topic 4 — Chance

#### Exercise 4.4.1

1. A bag contains 2 red marbles, 3 blue marbles and 4 white marbles. What is the chance of drawing out:

(a) a red marble? \_\_\_\_\_

(b) a blue marble or a white marble? \_\_\_\_\_

(c) a red marble or a blue marble? \_\_\_\_\_

2. Toss 3 coins at the same time.

(a) How many different ways could they possibly turn up?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(b) What is the chance of tossing 3 tails? \_\_\_\_\_

(c) What is the chance of tossing 2 heads and 1 tail? \_\_\_\_\_

(d) What is the chance of tossing 2 tails and 1 head? \_\_\_\_\_

3. One card is selected from a standard deck of 52 playing cards. Find the probability of getting a red card that is a face card.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. A die is tossed twice.

(a) Find the probability that the sum is 9.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(b) Find the probability that the sum is even and no more than 10.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## 4.5 Problem Solving (Divisibility)

### Summary of Divisibility Tests:

1. A number is divisible by another number if their quotient is a whole number and the remainder is zero.
2. A number is divisible by 9 if the sum of its digits is divisible by 9
3. A number is divisible by 3 if the sum of its digits is divisible by 3.
4. For whole numbers A, B and C, If A and B are both divisible by C. Then the sum and the difference of A and B are each divisible by C.

#### Example 4.5.1 The numbers 18, 27, 36, 117 ... are divisible by 9.

**Solution:** *Therefore, the sum of their digits:*

$$1 + 8 = 9, 2 + 7 = 9, 3 + 6 = 9 \text{ and } 1 + 1 + 7 = 9 \text{ are all divisible by 9.}$$

#### Example 4.5.2 If a number A24 is divisible by 9 and A is an one-digit number, what is the value of A?

**Solution:**  $\because A + 2 + 4 = A + 6$  will be multiples of 9.

$$\therefore A \text{ can be } 3, 12, 21, 30 \dots$$

*but if A is an one-digit number, A must be 3.*

#### Example 4.5.3 27 and 18 are both divisible by 9. Their sum and difference are each divisible by 9.

**Solution:**  $\because 27 \div 9 = 3$ , and  $18 \div 9 = 2$

$$\therefore 27 + 18 = 45, 45 \div 9 = 5 \text{ and } 27 - 18 = 9, 9 \div 9 = 1$$

#### Example 4.5.4 Find the missing digit if the given number 23\_\_56 is divisible by 3.

**Solution:** *Let the missing digit be X,  $2 + 3 + X + 5 + 6 = 16 + X$*

*$16 + X$  must be multiples of 3 (such as 18, 21, 24, 27, . . . )*

*but  $16 + 2 = 18$ ,  $16 + 5 = 21$ ,  $16 + 8 = 24$  and  $16 + 11 = 27$  (greater than 9).*

*$\therefore X$  can be 2, 5, and 8.*

**Exercise 4.5.1**

1. Determine if each of the following sums and differences is **not** divisible by 7.

(a)  $56 + 21$  \_\_\_\_\_

(b)  $42 + 65$  \_\_\_\_\_

(c)  $210 - 49$  \_\_\_\_\_

(d)  $770 - 540$  \_\_\_\_\_

(e)  $280 + 47$  \_\_\_\_\_

2. Find the value of A for the following numbers if A is an one-digit number:

(a) A23A is divisible by 9. \_\_\_\_\_

(b) 45AA is divisible by 9. \_\_\_\_\_

(c) A378 is divisible by 3. \_\_\_\_\_

(d) The sum of 4A and 23 is divisible by 7. \_\_\_\_\_

(e) The difference of the A2 and 41 is divisible by 9. \_\_\_\_\_

3. Does each of the following periods of days form a whole number of weeks?

(a) 154 days. \_\_\_\_\_

(b) 161 days. \_\_\_\_\_

(c) 227 days. \_\_\_\_\_

(d) 693 days. \_\_\_\_\_

4. The pages of a certain book are numbered consecutively from 1 to 200. How many page numbers contain the digit 5 and are also divisible by 5?

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5. The pages of a certain book are numbered consecutively from 1 to 300. How many page numbers contain the digit 5 and are **not** divisible by 5?

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## 4.6 Test Paper 4

### 4.6.1 Part A

1. How many tenths are there in two quarters? \_\_\_\_\_
2.  $3\frac{3}{4}$  hours = \_\_\_\_\_ minutes.
3. 25% means 25 out of \_\_\_\_\_
4. 18% is 9 out of \_\_\_\_\_
5. Divide 12 by three quarters . The answer is \_\_\_\_\_ .
6. Express 0.03 in percentage form \_\_\_\_\_ .
7. The digit 7 in the number 127,356.25 represents \_\_\_\_\_
8. How many kilograms in 0.025 tonnes? \_\_\_\_\_
9. In a parallelogram, the opposite angles are \_\_\_\_\_ .
10. 12 less than twice the sum of 15 and 7 is \_\_\_\_\_ .
11. The digits of the number 2473 are reversed to form a new number. The smallest 4 digit number is then subtracted from the larger. The answer is \_\_\_\_\_ .
12. When the product of the digits of the number 357 is added to the sum of the digits the answer is \_\_\_\_\_ .
13. The volume of a closed cube is  $125 \text{ cm}^3$ . What is the total surface area? \_\_\_\_\_
14. Find 25 seconds as fraction of a minute. \_\_\_\_\_
15. How many weeks between the 6th of March and the 18th of June? \_\_\_\_\_
16. What is the smallest possible number that can be formed by using the given five numbers and a decimal point. The five numbers are 9, 0, 1, 6, and 5, which each number can only be used once. \_\_\_\_\_
17. Is the number 247356 divisible by 9? \_\_\_\_\_
18. What is the smallest angle between North and South-west? \_\_\_\_\_
19. Fill the square with the same whole number.  $\frac{\square+3}{\square-3} = 1\frac{2}{13}$
20. When 2 is multiplied by itself 32 times, what is the units digit from that product? \_\_\_\_\_



**4.6.2 Part B**

1. After Steven has given \$25 to Raymond, they have equal sums of money. What is the difference between their original sums of money?

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2. Instead of multiplying by 3, John divided by 5. John's answer was 15. What should be the correct answer?

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3. What is the least number with a remainder of 3 when 75 is divided, and a remainder of 5 when 113 is divided?

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4. A woman whose age is 39 years , was 25 years old when her son was born. How old will her son be in 7 years time?

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5. Peter jogged  $15\frac{3}{5}$  km in 2 hours and 30 minutes. What was his average speed in km/h ?

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6. Out of 45 students, 37 caught the train, 15 the bus and 5 walked. How many caught both the bus and train?

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**4.6.3 Part C**

1. Find the four consecutive numbers such that the sum of the first three numbers is twelve more than the fourth number.

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2. A plane due at 7.30 a.m. arrived 35 minutes early. When did it arrive?

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3. Peter was earning \$460 per week. If he receives an increase of 12.5%, how much per week will he then be paid?

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4. A square tile measures 30 cm by 30 cm. How many are required to cover the floor of a room which measures 6 m by 9 m?

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5. In a class of 32 students,  $\frac{5}{8}$  are girls. How many boys are there?

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6. Out of 40 students, 17 have brothers, 22 have sisters and 9 have both. How many students have neither brother nor sisters?

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**4.6.4 Part D — Challenging Problems**

1. Find the sum of the consecutive odd numbers from 1 to 199 inclusive.  
In other words, if  $S = 1 + 3 + 5 + \dots + 197 + 199$ , find the value of  $S$ .

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2. A set of marbles can be divided in equal shares among 2, 3, 4, 5, 6 and 7 children with no marbles left over. What is the least number of marbles that the set could have?

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3. The five-digit numeral  $A51AA$  is divisible by 9. What digit does  $A$  represent?

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4.  $X$  and  $Y$  represent numbers, and  $X \heartsuit Y$  equals  $\frac{X+Y}{2}$ .

What is the value of  $(2\heartsuit 6)\heartsuit(8\heartsuit 12)$ ?

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