

# MATH MYSTERY

CASE OF THE

ROGUE RUNNER



GRADE 6

RATES &

RATIOS



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# Teacher Resource

## Instructions

### PREPARATION

Print and copy pages 4-12 for your students (for Clue 4, choose between page 9 or 10 depending on your preference to use customary or metric language. The questions/answers are the same, just a few differences in language used e.g. kilograms/pounds.)

You can do either of the following:

- Combine the pages to form a booklet for each student to work on; OR
- Hand out worksheets as you want students to work on them – please note that if you choose this option, students will always need the 'Possible Suspects' page handy.
- If it is a difficult skill or something not yet done with your students, demonstration and a lesson before completing that clue is recommended.
- You could get students to work independently, or in pairs/groups.

**IMPORTANT:** The clues must be completed in the order I have arranged them in i.e. 1-5!

### HOW TO USE

Read through the article on page 4 'Math Mystery: Case of The Rogue Runner' to set up the activity and engage students.

Instruct students that they will need to keep referring back to their Possible Suspects list after solving each clue.

Students work through each clue, either guided by the teacher or independently (your choice). After completing a math worksheet, if students completed the questions correctly, a clue will be revealed. For example: '*The rogue's mask was found with traces of brown hair.*' So, in this example, students can conclude that any suspect remaining on the list with brown hair can be kept as a possible suspect and the rest without brown hair crossed off.

Once students have correctly completed all of the clues, only one suspect will remain and that is the identity of the Rogue Runner! On page 12, the teacher ticks off the 'Well done . . .' box and the student can receive an Award (provided on page 20) if they declare the correct suspect. If a student gets the wrong suspect, tick the second box "Oops! Try again," and instruct the student to go over their work to see where they went wrong.

### ANSWERS

I have provided answer sheets for all of the clues, as well as who the offender is. You will find these on pages 13-19. This includes the elimination process of suspects post each clue.

### AWARDS

On page 20 you will find awards that you can print and give to students who solve the case correctly. I suggest making it a rule that students complete all of the questions on each worksheet to be eligible for the award (even if they can guess what the clue is without finishing all of the math questions!). You could also make it a condition that students show their working out on the back of the page or on a separate piece of paper if applicable.

**If you need help, have any questions, or notice an error in my work please email me on**

**[JJResourceCreations@gmail.com](mailto:JJResourceCreations@gmail.com)**

**Thanks! 😊**

# MATH MYSTERY:

## CASE OF THE ROGUE RUNNER



Date: \_\_\_\_\_

Hold on to your bags, phones and wallets! Mathhattan's latest villain is quiet, sneaky and extremely fast, robbing people by the thousands! This speedy rogue is wearing a mask, cloak and hat; their identity unknown. To stop this rogue runner, we are going to have to figure out who this criminal is because no one on the police force is able to run fast enough to catch this thief.

Many citizens of Mathhattan are outraged by this mysterious and fast rogue. Hear what a few victims had to say:

Tahlia stated, **"I was talking on my phone and in a flash it was snatched from my hands! Whoever stole it was so fast; I couldn't think quickly enough to see or stop whoever it was!"**

Carl complained, **"I didn't even notice this rogue, and the next thing I knew, my wallet, phone and watch disappeared!"**

Tom cried, **"I haven't been able to buy my lunch most days this week! The same is happening for most of my friends too! I don't even realize that my money is gone until I go to use it."**

Linda exclaimed, **"I saw the rogue runner! Whoever it is runs at least ten times faster than an Olympic sprinter, no wonder why no one can catch this criminal!"**

The rogue runner continues to move through our city like a flash stealing from anyone out and about. Many citizens are distraught at finding themselves robbed blind, and the police are struggling to catch and arrest this disguised villain. A great math detective is needed to discover who the rogue runner is so that the police can arrest the thief and hopefully recover the belongings of many.

### **MATH DETECTIVE NEEDED TO SOLVE THE ROGUE RUNNER'S IDENTITY**

The police have made a list of all the possible suspects who can run extremely fast and could be the rogue runner. However, they urgently need a super math detective to help them solve this case and hopefully return the belongings to people robbed!

Name: \_\_\_\_\_

# POSSIBLE SUSPECTS

| Suspect Name    | Male/<br>Female | Hair Color | Shoe<br>Color | Tall/Short | Hiding In . . .   |
|-----------------|-----------------|------------|---------------|------------|-------------------|
| Lisa Sim        | Female          | Brown      | Green         | Short      | The Crystal Caves |
| Homer Zilber    | Male            | Blonde     | Pink          | Tall       | The Library Attic |
| Laila White     | Female          | Black      | Green         | Short      | The Forest        |
| Ola Patterson   | Female          | Brown      | Orange        | Short      | The Library Attic |
| Sean Levy       | Male            | Blonde     | Orange        | Short      | The Forest        |
| Carlos Alarcon  | Male            | Brown      | Green         | Tall       | The Forest        |
| Jordan McMillan | Male            | Brown      | Green         | Tall       | The Crystal Caves |
| Jessie Walker   | Female          | Black      | Pink          | Short      | The Crystal Caves |
| Dan Levitzki    | Male            | Blonde     | Orange        | Short      | The Library Attic |
| Mai Kaneshiro   | Female          | Black      | Pink          | Tall       | The Forest        |
| Carly Smyth     | Female          | Brown      | Pink          | Short      | The Forest        |
| Bart Samson     | Male            | Blonde     | Green         | Tall       | The Library Attic |
| Jackie Sanchez  | Female          | Brown      | Green         | Tall       | The Crystal Caves |
| Emma Guthrie    | Female          | Brown      | Orange        | Short      | The Forest        |
| Brody Meadows   | Male            | Black      | Orange        | Short      | The Forest        |
| Hayley Santos   | Female          | Brown      | Green         | Tall       | The Crystal Caves |
| Luna Sullivan   | Female          | Blonde     | Pink          | Short      | The Forest        |

Solve the clues and then cross the suspects off the list until one remains. The last suspect remaining is the identity of the Rogue Runner. The information in that suspect's remaining row will also tell you where you will find them if they are the Rogue Runner. 5

Name: \_\_\_\_\_

# RATIOS - CLUE 1

Crack the code by writing ratios to describe the pictures in each row. Use your answers to match and place the letters in the boxes to reveal the first clue. Put the letter in every box that it matches your answer in (there may be more than one!)

*The first one has been done for you.*

|     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |     |
| 3:8 | 3:5 | 1:5 | 1:4 | 3:5 | 2:6 | 1:2 |

|     |     |     |
|-----|-----|-----|
|     |     |     |
| 3:2 | 1:3 | 4:6 |

|     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |
| 1:2 | 3:2 | 2:5 | 3:5 | 2:1 | 1:6 |

|     |     |     |     |
|-----|-----|-----|-----|
|     | H   |     |     |
| 1:4 | 2:3 | 3:2 | 1:4 |

|     |     |     |
|-----|-----|-----|
|     | H   |     |
| 1:4 | 2:3 | 4:6 |

|     |     |     |     |     |
|-----|-----|-----|-----|-----|
|     |     |     |     |     |
| 1:3 | 4:1 | 1:6 | 2:4 | 4:6 |

|     |     |
|-----|-----|
|     |     |
| 3:5 | 1:2 |

|     |
|-----|
|     |
| 3:2 |

|     |     |     |     |
|-----|-----|-----|-----|
|     |     |     |     |
| 1:6 | 3:5 | 1:3 | 4:5 |

What is the ratio of triangles to circles in each row below:



2:3

H



O



N

What is the ratio of shoes to caps in each row below:



S

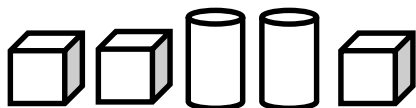


A



R

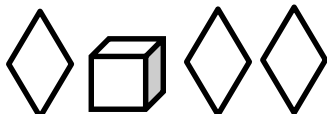
What is the ratio of cubes to total shapes in each row below:



I



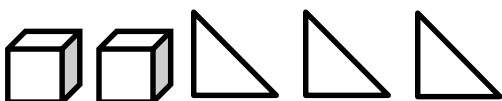
M



T



E



y

What is the ratio of circles to total shapes in each row below:



U



V



C



L



G

Name: \_\_\_\_\_

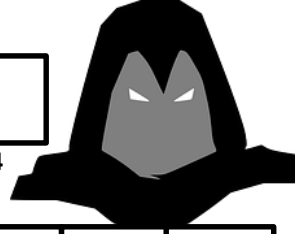
# UNIT RATES – CLUE 2

Crack the code by finding the unit rate. Use your answers to match and place the letters in the boxes to reveal the clue. Put the letter in every box that it matches your answer in (there may be more than one!)

|    |    |    |
|----|----|----|
|    |    |    |
| 70 | 46 | 35 |

|    |    |    |   |    |
|----|----|----|---|----|
|    |    |    |   |    |
| 60 | 10 | 15 | 6 | 35 |

|   |
|---|
|   |
| 4 |



|    |    |   |    |
|----|----|---|----|
|    |    |   |    |
| 54 | 63 | 4 | 12 |

|   |    |   |
|---|----|---|
|   |    |   |
| 9 | 63 | 4 |

|    |    |   |    |     |
|----|----|---|----|-----|
|    |    |   |    |     |
| 19 | 10 | 6 | 32 | 104 |

|   |    |    |    |
|---|----|----|----|
|   |    |    |    |
| 9 | 30 | 70 | 46 |

|    |    |    |    |    |   |
|----|----|----|----|----|---|
|    |    |    |    |    |   |
| 70 | 60 | 63 | 20 | 35 | 4 |

|    |    |
|----|----|
|    |    |
| 10 | 19 |

|    |    |    |   |    |
|----|----|----|---|----|
|    |    |    |   |    |
| 81 | 60 | 10 | 9 | 32 |

|    |    |    |    |
|----|----|----|----|
|    |    |    |    |
| 46 | 63 | 30 | 60 |

12 chairs in 2 rows = 6 chairs per row

**U**

20 push-ups in 2 days = \_\_\_\_\_ push-ups per day

**O**

12 cookies eaten in 3 hours = \_\_\_\_\_ cookies per hour

**S**

7 boxes with 490 bottles = \_\_\_\_\_ bottles per box

**T**

6 trays with 72 muffins = \_\_\_\_\_ muffins per tray

**K**

120 dollars for 4 tickets = \_\_\_\_\_ dollars per ticket

**I**

80 copies in 4 minutes = \_\_\_\_\_ copies per minute

**C**

315 dollars in 9 minutes = \_\_\_\_\_ dollars per minute

**E**

432 sales in 8 hours = \_\_\_\_\_ per hour

**M**

624 points in 6 minutes = \_\_\_\_\_ points per minute

**D**

252 jumps in 4 minutes = \_\_\_\_\_ jumps per minute

**A**

45 cakes made in 5 days = \_\_\_\_\_ cakes made per day

**W**

90 pages in 6 hours = \_\_\_\_\_ pages per hour

**G**

660 kilometres in 11 hours = \_\_\_\_\_ kilometres per hour

**R**

57 bags in 3 hours = \_\_\_\_\_ bags per hour

**F**

192 laps in 6 hours = \_\_\_\_\_ laps per hour

**N**

243 reports in 3 days = \_\_\_\_\_ reports per day

**B**

322 tables in 7 rooms = \_\_\_\_\_ tables per room

**H**

Name: \_\_\_\_\_

# REDUCING RATIOS – CLUE 3

Crack the code by reducing each ratio to its lowest form. Use your answers to match and place the letters in the boxes to reveal a clue. Put the letter in every box that it matches your answer in (there may be more than one!) The first one has been done for you!

|        |         |       |         |
|--------|---------|-------|---------|
|        |         |       |         |
| 1 : 17 | 15 : 11 | 2 : 1 | 21 : 11 |

|       |       |       |        |       |        |       |
|-------|-------|-------|--------|-------|--------|-------|
|       |       | C     |        |       |        |       |
| 5 : 8 | 6 : 7 | 6 : 1 | 16 : 9 | 6 : 7 | 1 : 17 | 7 : 1 |

|       |         |       |       |
|-------|---------|-------|-------|
|       |         |       |       |
| 4 : 1 | 15 : 11 | 5 : 8 | 1 : 9 |

|       |       |       |       |        |       |        |       |       |
|-------|-------|-------|-------|--------|-------|--------|-------|-------|
|       |       |       | C     |        |       |        |       |       |
| 5 : 3 | 1 : 9 | 7 : 1 | 6 : 1 | 10 : 1 | 6 : 7 | 12 : 1 | 1 : 9 | 5 : 3 |

|        |       |       |
|--------|-------|-------|
|        |       |       |
| 16 : 9 | 4 : 1 | 1 : 9 |

|        |       |        |       |       |
|--------|-------|--------|-------|-------|
|        |       |        |       |       |
| 10 : 1 | 1 : 3 | 1 : 20 | 9 : 1 | 1 : 9 |

|         |       |
|---------|-------|
|         |       |
| 15 : 11 | 7 : 1 |

|       |       |       |        |        |
|-------|-------|-------|--------|--------|
|       |       |       |        |        |
| 7 : 1 | 4 : 1 | 1 : 3 | 10 : 1 | 16 : 9 |

$$60 : 10 = \frac{6 : 1}{C}$$

$$40 : 20 = \frac{\quad}{N}$$

$$75 : 55 = \frac{\quad}{A}$$

$$10 : 30 = \frac{\quad}{O}$$

$$84 : 7 = \frac{\quad}{B}$$

$$12 : 108 = \frac{\quad}{E}$$

$$24 : 28 = \frac{\quad}{I}$$

$$44 : 11 = \frac{\quad}{H}$$

$$250 : 400 = \frac{\quad}{V}$$

$$270 : 30 = \frac{\quad}{U}$$

$$63 : 33 = \frac{\quad}{Y}$$

$$32 : 18 = \frac{\quad}{T}$$

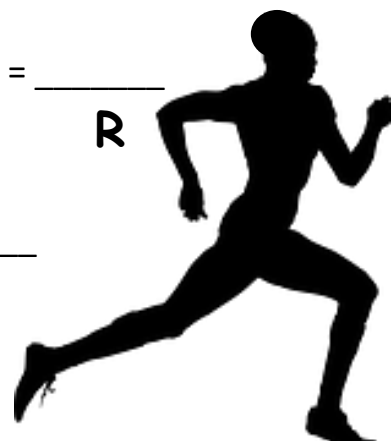
$$4 : 80 = \frac{\quad}{G}$$

$$55 : 33 = \frac{\quad}{D}$$

$$1,000 : 100 = \frac{\quad}{R}$$

$$560 : 80 = \frac{\quad}{S}$$

$$20 : 340 = \frac{\quad}{M}$$





Name: \_\_\_\_\_

## Customary Units

## UNIT RATE PRICES – CLUE 4

Crack the code by solving the problems in the boxes. Use your answers to match and place the letters in the boxes to reveal a clue. Put the letter in every box that it matches your answer in (there may be more than one!) The first one has been done for you!

|  |  |  |
|--|--|--|
|  |  |  |
|--|--|--|

3.90 37.05 6.55

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  |  |
|--|--|--|--|--|

6.90 18.60 20.70 8.10 6.55

|  |  |  |
|--|--|--|
|  |  |  |
|--|--|--|

5.25 48.66 2.03

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

2.03 6.55 6.55 23.40



|  |  |  |  |   |  |  |
|--|--|--|--|---|--|--|
|  |  |  |  | I |  |  |
|--|--|--|--|---|--|--|

6.90 8.10 23.40 23.40 27.28 23.40 20.70

|   |  |  |  |
|---|--|--|--|
| I |  |  |  |
|---|--|--|--|

27.28 23.40 3.90 18.60

|  |  |  |
|--|--|--|
|  |  |  |
|--|--|--|

3.90 37.05 6.55

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|--|--|--|--|--|--|

102.14 18.60 6.90 6.55 2.03 3.90

If 6 books cost \$20.46, how much would 8 books cost? \$27.28 **I**

If 4 muffins cost \$5.24, how much would 5 muffins cost? \_\_\_\_\_ **E**

If 3 hats cost \$24.30, how much would 1 hat cost? \_\_\_\_\_ **U**

If 8 cakes cost \$62.40, how much would 3 cakes cost? \_\_\_\_\_ **N**

If 2 pizzas cost \$16.22, how much would 6 pizzas cost? \_\_\_\_\_ **A**

If 5 bags cost \$255.35, how much would 2 bags cost? \_\_\_\_\_ **F**

If apples cost \$3.50 per pound, how much would 1 ½ pounds cost? \_\_\_\_\_ **W**

If pears cost \$1.95 per pound, how much would 2 pounds cost? \_\_\_\_\_ **T**

If nuts cost \$9.20 per pound, how much would 2 ¼ pounds cost? \_\_\_\_\_ **G**

If petrol cost \$1.20 per gallon, how much would 5 ¾ gallons cost? \_\_\_\_\_ **R**

If milk cost \$0.58 per gallon, how much would 3 ½ gallons cost? \_\_\_\_\_ **S**

If lollies cost \$11.40 per pound, how much would 3 ¼ pounds cost? \_\_\_\_\_ **H**

4 donuts cost \$6.20. How much would 12 donuts cost? \_\_\_\_\_ **O**

Name: \_\_\_\_\_

**Metric Units****UNIT RATE PRICES – CLUE 4**

Crack the code by solving the problems in the boxes. Use your answers to match and place the letters in the boxes to reveal a clue. Put the letter in every box that it matches your answer in (there may be more than one!) The first one has been done for you!

|      |       |      |
|------|-------|------|
|      |       |      |
| 3.90 | 37.05 | 6.55 |

|      |       |       |      |      |
|------|-------|-------|------|------|
|      |       |       |      |      |
| 6.90 | 18.60 | 20.70 | 8.10 | 6.55 |

|      |       |      |
|------|-------|------|
|      |       |      |
| 5.25 | 48.66 | 2.03 |

|      |      |      |       |
|------|------|------|-------|
|      |      |      |       |
| 2.03 | 6.55 | 6.55 | 23.40 |



|      |      |       |       |          |       |       |
|------|------|-------|-------|----------|-------|-------|
|      |      |       |       | <b>I</b> |       |       |
| 6.90 | 8.10 | 23.40 | 23.40 | 27.28    | 23.40 | 20.70 |

|          |       |      |       |
|----------|-------|------|-------|
| <b>I</b> |       |      |       |
| 27.28    | 23.40 | 3.90 | 18.60 |

|      |       |      |
|------|-------|------|
|      |       |      |
| 3.90 | 37.05 | 6.55 |

|        |       |      |      |      |      |
|--------|-------|------|------|------|------|
|        |       |      |      |      |      |
| 102.14 | 18.60 | 6.90 | 6.55 | 2.03 | 3.90 |

If 6 books cost \$20.46, how much would 8 books cost? \$27.28 **I**

If 4 muffins cost \$5.24, how much would 5 muffins cost? \_\_\_\_\_ **E**

If 3 hats cost \$24.30, how much would 1 hat cost? \_\_\_\_\_ **U**

If 8 cakes cost \$62.40, how much would 3 cakes cost? \_\_\_\_\_ **N**

If 2 pizzas cost \$16.22, how much would 6 pizzas cost? \_\_\_\_\_ **A**

If 5 bags cost \$255.35, how much would 2 bags cost? \_\_\_\_\_ **F**

If apples cost \$3.50 per kilo, how much would 1 ½ kilos cost? \_\_\_\_\_ **W**

If pears cost \$1.95 per kilo, how much would 2 kilos cost? \_\_\_\_\_ **T**

If nuts cost \$9.20 per kilo, how much would 2 ¼ kilos cost? \_\_\_\_\_ **G**

If petrol cost \$1.20 per liter, how much would 5 ¾ liters cost? \_\_\_\_\_ **R**

If milk cost \$0.58 per liter, how much would 3 ½ liters cost? \_\_\_\_\_ **S**

If lollies cost \$11.40 per kilo, how much would 3 ¼ kilos cost? \_\_\_\_\_ **H**

4 donuts cost \$6.20. How much would 12 donuts cost? \_\_\_\_\_ **O**

Name: \_\_\_\_\_

# EQUIVALENT RATIOS – CLUE 5

Crack the code by filling in the blank spaces to make the ratios equivalent. Use your answers (the number that you wrote only) to match and place the letters in the boxes to reveal a clue. Put the letter in every box that it matches your answer in (there may be more than one!) The first one has been done for you!

|    |   |    |
|----|---|----|
|    |   |    |
| 10 | 7 | 15 |

|   |    |    |     |    |
|---|----|----|-----|----|
|   |    |    | U   |    |
| 3 | 11 | 48 | 300 | 15 |

|    |
|----|
|    |
| 12 |

|    |   |   |    |    |    |
|----|---|---|----|----|----|
|    |   |   |    |    |    |
| 11 | 3 | 1 | 40 | 48 | 15 |

|    |   |    |    |
|----|---|----|----|
|    |   |    |    |
| 12 | 7 | 11 | 15 |

|    |    |    |    |
|----|----|----|----|
|    |    |    |    |
| 25 | 15 | 50 | 50 |

|    |    |    |
|----|----|----|
|    |    |    |
| 11 | 25 | 25 |



|   |     |   |    |    |    |
|---|-----|---|----|----|----|
|   | U   |   |    |    |    |
| 2 | 300 | 3 | 80 | 40 | 48 |

|   |
|---|
|   |
| 1 |

|   |   |   |    |    |
|---|---|---|----|----|
|   |   |   |    |    |
| 5 | 7 | 1 | 12 | 15 |

$$10 : 30 = 100 : \underline{300}$$

**U**

$$4 : 5 = 40 : \underline{\quad}$$

**L**

$$20 : 10 = 2 : \underline{\quad}$$

**A**

$$2 : 3 = 10 : \underline{\quad}$$

**E**

$$2 : 6 = 1 : \underline{\quad}$$

**R**

$$3 : 5 = 6 : \underline{\quad}$$

**T**

$$12 : 15 = 4 : \underline{\quad}$$

**C**

$$300 : 800 = 30 : \underline{\quad}$$

**I**

$$3 : 4 = 9 : \underline{\quad}$$

**S**

$$1 : 5 = 5 : \underline{\quad}$$

**F**

$$4 : 12 = 16 : \underline{\quad}$$

**G**

$$99 : 77 = 9 : \underline{\quad}$$

**H**

$$15 : 30 = 1 : \underline{\quad}$$

**D**

$$6 : 12 = 20 : \underline{\quad}$$

**N**

$$4 : 44 = 1 : \underline{\quad}$$

**O**

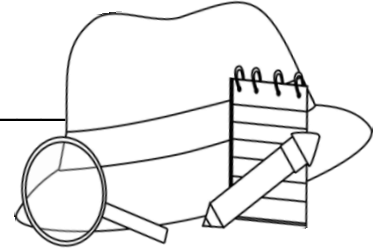


# SOLVE THE MYSTERY: WHO IS THE ROGUE RUNNER?



Detective

(your name)

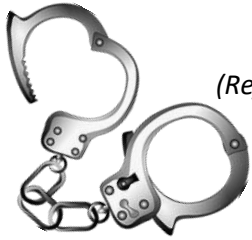


Has discovered that the Rogue Runner is:

\_\_\_\_\_

The police will need to search in the \_\_\_\_\_ to find him/her.

*(Refer to the place the suspect is hiding in.)*



**Clues Checklist:**

Clue 1

Clue 2

Clue 3

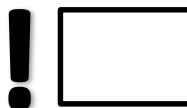
Clue 4

Clue 5

**Teacher to check and tick**



Well done, you solved the correct identity of the Rogue Runner! Because of your hard work and amazing detective skills, the police have arrested the rogue and put a stop to the theft all over town! Many belongings were also returned to their rightful owners, thank you!



Oops! No that is not the Rogue Runner. Go over, check your clues and try again.

Name: \_\_\_\_\_

# ANSWER SHEET CLUE 1

Crack the code by writing ratios to describe the pictures in each row. Use your answers to match and place the letters in the boxes to reveal the first clue. Put the letter in every box that it matches your answer in (there may be more than one!)

*The first one has been done for you.*

|     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|
| V   | I   | C   | T   | I   | M   | S   |
| 3:8 | 3:5 | 1:5 | 1:4 | 3:5 | 2:6 | 1:2 |

|     |     |     |
|-----|-----|-----|
| A   | R   | E   |
| 3:2 | 1:3 | 4:6 |

Cross off all male suspects.

|     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|
| S   | A   | Y   | I   | N   | G   |
| 1:2 | 3:2 | 2:5 | 3:5 | 2:1 | 1:6 |

|     |     |     |     |
|-----|-----|-----|-----|
| T   | H   | A   | T   |
| 1:4 | 2:3 | 3:2 | 1:4 |

|     |     |     |
|-----|-----|-----|
| T   | H   | E   |
| 1:4 | 2:3 | 4:6 |

|     |     |     |     |     |
|-----|-----|-----|-----|-----|
| R   | O   | G   | U   | E   |
| 1:3 | 4:1 | 1:6 | 2:4 | 4:6 |

|     |     |
|-----|-----|
| I   | S   |
| 3:5 | 1:2 |

|     |
|-----|
| A   |
| 3:2 |

|     |     |     |     |
|-----|-----|-----|-----|
| G   | I   | R   | L   |
| 1:6 | 3:5 | 1:3 | 4:5 |

What is the ratio of triangles to circles in each row below:



2:3

H



4:1

O



2:1

N

What is the ratio of shoes to caps in each row below:



1:2

S



3:2

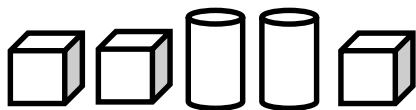
A



1:3

R

What is the ratio of cubes to total shapes in each row below:



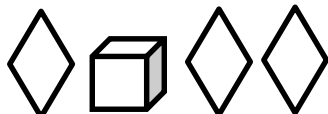
3:5

I



2:6

M



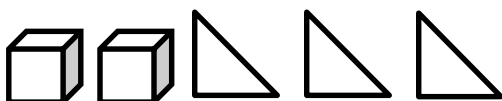
1:4

T



4:6

E



2:5

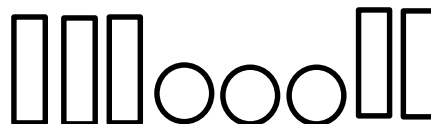
Y

What is the ratio of circles to total shapes in each row below:



2:4

U



3:8

V



1:5

C



4:5

L



1:6

G

Name: \_\_\_\_\_

# ANSWER SHEET – CLUE 2

Crack the code by finding the unit rate. Use your answers to match and place the letters in the boxes to reveal the clue. Put the letter in every box that it matches your answer in (there may be more than one!) The first one has been done for you!

|    |    |    |
|----|----|----|
| T  | H  | E  |
| 70 | 46 | 35 |

|    |    |    |   |    |
|----|----|----|---|----|
| R  | O  | G  | U | E  |
| 60 | 10 | 15 | 6 | 35 |

|   |
|---|
| S |
| 4 |

Cross out any remaining suspects who do not have brown hair.

|    |    |   |    |
|----|----|---|----|
| M  | A  | S | K  |
| 54 | 63 | 4 | 12 |

|   |    |   |
|---|----|---|
| W | A  | S |
| 9 | 63 | 4 |

|    |    |   |    |     |
|----|----|---|----|-----|
| F  | O  | U | N  | D   |
| 19 | 10 | 6 | 32 | 104 |

|   |    |    |    |
|---|----|----|----|
| W | I  | T  | H  |
| 9 | 30 | 70 | 46 |

|    |    |    |    |    |   |
|----|----|----|----|----|---|
| T  | R  | A  | C  | E  | S |
| 70 | 60 | 63 | 20 | 35 | 4 |

|    |    |
|----|----|
| O  | F  |
| 10 | 19 |

|    |    |    |   |    |
|----|----|----|---|----|
| B  | R  | O  | W | N  |
| 81 | 60 | 10 | 9 | 32 |

|    |    |    |    |
|----|----|----|----|
| H  | A  | I  | R  |
| 46 | 63 | 30 | 60 |

12 chairs in 2 rows = 6 chairs per row

U

20 push-ups in 2 days = 10 push-ups per day

O

12 cookies eaten in 3 hours = 4 cookies per hour

S

7 boxes with 490 bottles = 70 bottles per box

T

6 trays with 72 muffins = 12 muffins per tray

K

120 dollars for 4 tickets = 30 dollars per ticket

I

80 copies in 4 minutes = 20 copies per minute

C

315 dollars in 9 minutes = 35 dollars per minute

E

432 sales in 8 hours = 54 per hour

M

624 points in 6 minutes = 104 points per minute

D

252 jumps in 4 minutes = 63 jumps per minute

A

45 cakes made in 5 days = 9 cakes made per day

W

90 pages in 6 hours = 15 pages per hour

G

660 kilometres in 11 hours = 60 kilometres per hour

R

57 bags in 3 hours = 19 bags per hour

F

192 laps in 6 hours = 32 laps per hour

N

243 reports in 3 days = 81 reports per day

B

322 tables in 7 rooms = 46 tables per room

H

Name: \_\_\_\_\_

# ANSWER SHEET – CLUE 3

Crack the code by reducing each ratio to its lowest form. Use your answers to match and place the letters in the boxes to reveal a clue. Put the letter in every box that it matches your answer in (there may be more than one!) The first one has been done for you!

|        |         |       |         |
|--------|---------|-------|---------|
| M      | A       | N     | Y       |
| 1 : 17 | 15 : 11 | 2 : 1 | 21 : 11 |

|       |       |       |        |       |        |       |
|-------|-------|-------|--------|-------|--------|-------|
| V     | I     | C     | T      | I     | M      | S     |
| 5 : 8 | 6 : 7 | 6 : 1 | 16 : 9 | 6 : 7 | 1 : 17 | 7 : 1 |

|       |         |       |       |
|-------|---------|-------|-------|
| H     | A       | V     | E     |
| 4 : 1 | 15 : 11 | 5 : 8 | 1 : 9 |

Cross out any remaining tall suspects.

|       |       |       |       |        |       |        |       |       |
|-------|-------|-------|-------|--------|-------|--------|-------|-------|
| D     | E     | S     | C     | R      | I     | B      | E     | D     |
| 5 : 3 | 1 : 9 | 7 : 1 | 6 : 1 | 10 : 1 | 6 : 7 | 12 : 1 | 1 : 9 | 5 : 3 |

|        |       |       |
|--------|-------|-------|
| T      | H     | E     |
| 16 : 9 | 4 : 1 | 1 : 9 |

|        |       |        |       |       |
|--------|-------|--------|-------|-------|
| R      | O     | G      | U     | E     |
| 10 : 1 | 1 : 3 | 1 : 20 | 9 : 1 | 1 : 9 |

|         |       |
|---------|-------|
| A       | S     |
| 15 : 11 | 7 : 1 |

|       |       |       |        |        |
|-------|-------|-------|--------|--------|
| S     | H     | O     | R      | T      |
| 7 : 1 | 4 : 1 | 1 : 3 | 10 : 1 | 16 : 9 |

$$60 : 10 = \frac{6 : 1}{C}$$

$$40 : 20 = \frac{2 : 1}{N}$$

$$75 : 55 = \frac{15 : 11}{A}$$

$$10 : 30 = \frac{1 : 3}{O}$$

$$84 : 7 = \frac{12 : 1}{B}$$

$$12 : 108 = \frac{1 : 9}{E}$$

$$24 : 28 = \frac{6 : 7}{I}$$

$$44 : 11 = \frac{4 : 1}{H}$$

$$250 : 400 = \frac{5 : 8}{V}$$

$$270 : 30 = \frac{9 : 1}{U}$$

$$63 : 33 = \frac{21 : 11}{Y}$$

$$32 : 18 = \frac{16 : 9}{T}$$

$$4 : 80 = \frac{1 : 20}{G}$$

$$55 : 33 = \frac{5 : 3}{D}$$

$$1,000 : 100 = \frac{10 : 1}{R}$$

$$20 : 340 = \frac{1 : 17}{M}$$

$$560 : 80 = \frac{7 : 1}{S}$$

Name: \_\_\_\_\_

## Customary Unit Language

**ANSWER SHEET – CLUE 4**

Crack the code by solving the problems in the boxes. Use your answers to match and place the letters in the boxes to reveal a clue. Put the letter in every box that it matches your answer in (there may be more than one!) The first one has been done for you!

|      |       |      |
|------|-------|------|
| T    | H     | E    |
| 3.90 | 37.05 | 6.55 |

|      |       |       |      |      |
|------|-------|-------|------|------|
| R    | O     | G     | U    | E    |
| 6.90 | 18.60 | 20.70 | 8.10 | 6.55 |

|      |       |      |
|------|-------|------|
| W    | A     | S    |
| 5.25 | 48.66 | 2.03 |

|      |      |      |       |
|------|------|------|-------|
| S    | E    | E    | N     |
| 2.03 | 6.55 | 6.55 | 23.40 |

Cross out any remaining suspects who are not hiding in the forest.

|      |      |       |       |       |       |       |
|------|------|-------|-------|-------|-------|-------|
| R    | U    | N     | N     | I     | N     | G     |
| 6.90 | 8.10 | 23.40 | 23.40 | 27.28 | 23.40 | 20.70 |

|       |       |      |       |
|-------|-------|------|-------|
| I     | N     | T    | O     |
| 27.28 | 23.40 | 3.90 | 18.60 |

|      |       |      |
|------|-------|------|
| T    | H     | E    |
| 3.90 | 37.05 | 6.55 |

|        |       |      |      |      |      |
|--------|-------|------|------|------|------|
| F      | O     | R    | E    | S    | T    |
| 102.14 | 18.60 | 6.90 | 6.55 | 2.03 | 3.90 |

If 6 books cost \$20.46, how much would 8 books cost? \$27.28 **I**

If 4 muffins cost \$5.24, how much would 5 muffins cost? \$6.55 **E**

If 3 hats cost \$24.30, how much would 1 hat cost? \$8.10 **U**

If 8 cakes cost \$62.40, how much would 3 cakes cost? \$23.40 **N**

If 2 pizzas cost \$16.22, how much would 6 pizzas cost? \$48.66 **A**

If 5 bags cost \$255.35, how much would 2 bags cost? \$102.14 **F**

If apples cost \$3.50 per pound, how much would 1 ½ pounds cost? \$5.25 **W**

If pears cost \$1.95 per pound, how much would 2 pounds cost? \$3.90 **T**

If nuts cost \$9.20 per pound, how much would 2 ¼ pounds cost? \$20.70 **G**

If petrol cost \$1.20 per gallon, how much would 5 ¾ gallons cost? \$6.90 **R**

If milk cost \$0.58 per gallon, how much would 3 ½ gallons cost? \$2.03 **S**

If lollies cost \$11.40 per pound, how much would 3 ¼ pounds cost? \$37.05 **H**

4 donuts cost \$6.20. How much would 12 donuts cost? \$18.60 **O**



Name: \_\_\_\_\_

**Metric Unit Language****ANSWER SHEET – CLUE 4**

Crack the code by solving the problems in the boxes. Use your answers to match and place the letters in the boxes to reveal a clue. Put the letter in every box that it matches your answer in (there may be more than one!) The first one has been done for you!

Cross out any remaining suspects who are not hiding in the forest.

|      |       |      |
|------|-------|------|
| T    | H     | E    |
| 3.90 | 37.05 | 6.55 |

|      |       |       |      |      |
|------|-------|-------|------|------|
| R    | O     | G     | U    | E    |
| 6.90 | 18.60 | 20.70 | 8.10 | 6.55 |

|      |       |      |
|------|-------|------|
| W    | A     | S    |
| 5.25 | 48.66 | 2.03 |

|      |      |      |       |
|------|------|------|-------|
| S    | E    | E    | N     |
| 2.03 | 6.55 | 6.55 | 23.40 |

|      |      |       |       |       |       |       |
|------|------|-------|-------|-------|-------|-------|
| R    | U    | N     | N     | I     | N     | G     |
| 6.90 | 8.10 | 23.40 | 23.40 | 27.28 | 23.40 | 20.70 |

|       |       |      |       |
|-------|-------|------|-------|
| I     | N     | T    | O     |
| 27.28 | 23.40 | 3.90 | 18.60 |

|      |       |      |
|------|-------|------|
| T    | H     | E    |
| 3.90 | 37.05 | 6.55 |

|        |       |      |      |      |      |
|--------|-------|------|------|------|------|
| F      | O     | R    | E    | S    | T    |
| 102.14 | 18.60 | 6.90 | 6.55 | 2.03 | 3.90 |

If 6 books cost \$20.46, how much would 8 books cost? \$27.28 **I**

If 4 muffins cost \$5.24, how much would 5 muffins cost? \$6.55 **E**

If 3 hats cost \$24.30, how much would 1 hat cost? \$8.10 **U**

If 8 cakes cost \$62.40, how much would 3 cakes cost? \$23.40 **N**

If 2 pizzas cost \$16.22, how much would 6 pizzas cost? \$48.66 **A**

If 5 bags cost \$255.35, how much would 2 bags cost? \$102.14 **F**

If apples cost \$3.50 per kilo, how much would 1 ½ kilos cost? \$5.25 **W**

If pears cost \$1.95 per kilo, how much would 2 kilos cost? \$3.90 **T**

If nuts cost \$9.20 per kilo, how much would 2 ¼ kilos cost? \$20.70 **G**

If petrol cost \$1.20 per litre, how much would 5 ¾ litres cost? \$6.90 **R**

If milk cost \$0.58 per litre, how much would 3 ½ litres cost? \$2.03 **S**

If lollies cost \$11.40 per kilo, how much would 3 ¼ kilos cost? \$37.05 **H**

4 donuts cost \$6.20. How much would 12 donuts cost? \$18.60 **O**

Name: \_\_\_\_\_

# ANSWER SHEET – CLUE 5

Crack the code by filling in the blank spaces to make the ratios equivalent. Use your answers (*the number that you wrote only*) to match and place the letters in the boxes to reveal a clue. Put the letter in every box that it matches your answer in (there may be more than one!) The first one has been done for you!

|    |   |    |
|----|---|----|
| T  | H | E  |
| 10 | 7 | 15 |

|   |    |    |     |    |    |
|---|----|----|-----|----|----|
| R | O  | G  | U   | E  | S  |
| 3 | 11 | 48 | 300 | 15 | 12 |

|    |   |   |    |    |    |
|----|---|---|----|----|----|
| O  | R | A | N  | G  | E  |
| 11 | 3 | 1 | 40 | 48 | 15 |

|    |   |    |    |
|----|---|----|----|
| S  | H | O  | E  |
| 12 | 7 | 11 | 15 |

|    |    |    |    |
|----|----|----|----|
| F  | E  | L  | L  |
| 25 | 15 | 50 | 50 |

|    |    |    |
|----|----|----|
| O  | F  | F  |
| 11 | 25 | 25 |

|   |     |   |    |    |    |
|---|-----|---|----|----|----|
| D | U   | R | I  | N  | G  |
| 2 | 300 | 3 | 80 | 40 | 48 |

|   |
|---|
| A |
| 1 |

|   |   |   |    |    |
|---|---|---|----|----|
| C | H | A | S  | E  |
| 5 | 7 | 1 | 12 | 15 |

$$10 : 30 = 100 : \underline{300}$$

U

$$4 : 5 = 40 : \underline{50}$$

L

$$20 : 10 = 2 : \underline{1}$$

A

$$2 : 3 = 10 : \underline{15}$$

E

$$2 : 6 = 1 : \underline{3}$$

R

$$3 : 5 = 6 : \underline{10}$$

T

$$12 : 15 = 4 : \underline{5}$$

C

$$300 : 800 = 30 : \underline{80}$$

I

$$3 : 4 = 9 : \underline{12}$$

S

$$1 : 5 = 5 : \underline{25}$$

F

$$4 : 12 = 16 : \underline{48}$$

G

$$99 : 77 = 9 : \underline{7}$$

H

$$15 : 30 = 1 : \underline{2}$$

D

$$6 : 12 = 20 : \underline{40}$$

N

$$4 : 44 = 1 : \underline{11}$$

O

Cross out the suspect remaining who isn't wearing orange shoes. This should leave one suspect left on the list, and that person is the rogue runner.

# ELIMINATION OF SUSPECTS

| Suspect Name        | Male/<br>Female | Hair Color   | Shoe<br>Color | Tall/Short   | Hiding In . . .   |
|---------------------|-----------------|--------------|---------------|--------------|-------------------|
| Lisa Sim            | Female          | Brown        | Green         | Short        | The Crystal Caves |
| Homer Zilber        | Male            | Blonde       | Pink          | Tall         | The Library Attic |
| Laila White         | Female          | Black        | Green         | Short        | The Forest        |
| Ola Patterson       | Female          | Brown        | Orange        | Short        | The Library Attic |
| Sean Levy           | Male            | Blonde       | Orange        | Short        | The Forest        |
| Carlos Alarcon      | Male            | Brown        | Green         | Tall         | The Forest        |
| Jordan McMillan     | Male            | Brown        | Green         | Tall         | The Crystal Caves |
| Jessie Walker       | Female          | Black        | Pink          | Short        | The Crystal Caves |
| Dan Levitzki        | Male            | Blonde       | Orange        | Short        | The Library Attic |
| Mai Kaneshiro       | Female          | Black        | Pink          | Tall         | The Forest        |
| Carly Smyth         | Female          | Brown        | Pink          | Short        | The Forest        |
| Bart Samson         | Male            | Blonde       | Green         | Tall         | The Library Attic |
| Jackie Sanchez      | Female          | Brown        | Green         | Tall         | The Crystal Caves |
| <b>Emma Guthrie</b> | <b>Female</b>   | <b>Brown</b> | <b>Orange</b> | <b>Short</b> | <b>The Forest</b> |
| Brody Meadows       | Male            | Black        | Orange        | Short        | The Forest        |
| Hayley Santos       | Female          | Brown        | Green         | Tall         | The Crystal Caves |
| Luna Sullivan       | Female          | Blonde       | Pink          | Short        | The Forest        |

On the answer sheets you will find a comment about what needs to be crossed off. Please refer to the color of the font and the color of the shaded item rows to show which suspect/s have been crossed off from that clue.

**ANSWER: EMMA GUTHRIE**

# Super Detective Work!

Awarded To:

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For solving the Math Mystery:

**Case of The Rogue Runner**



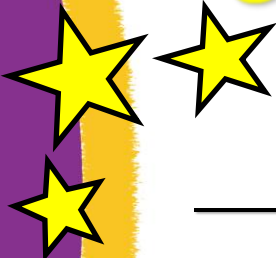
# Super Detective Work!

Awarded To:

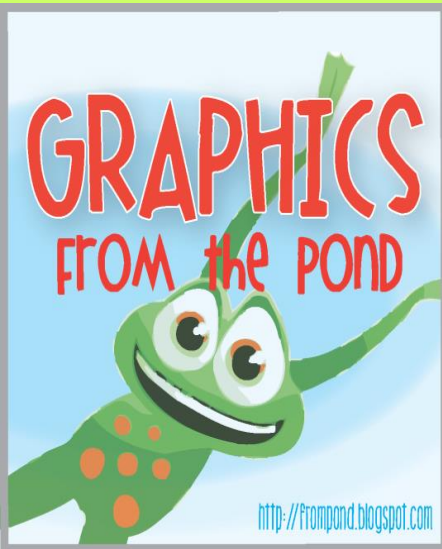
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For solving the Math Mystery:

**Case of The Rogue Runner**



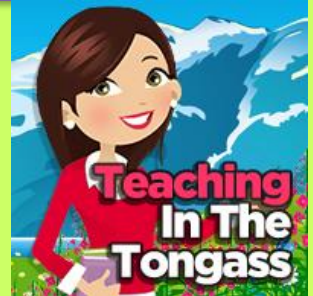
# Graphics & Fonts By:



Vector Open Stock.com

MyCuteGraphics

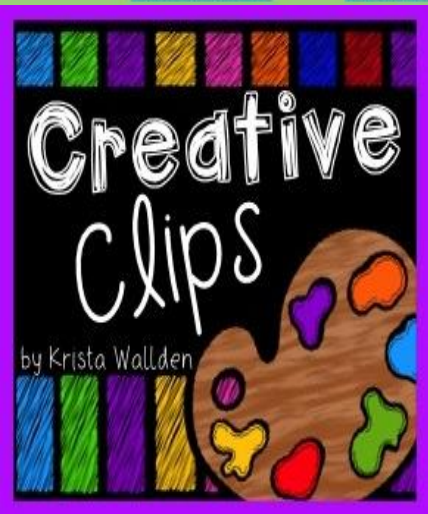
A Turn to Learn



Fonts by The Learning Tree

Vladimir Zuñiga Foca.tk

CLIPART Lord - <http://www.clipartlord.com/>



# Thank You!