



# The Golden Marshmallow Mystery

Grade 7 math · Fractions of a number, Multi-step word problems, Integers, Percentages · Reading level grades 1-2

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

Oh no! The shiny Golden Marshmallow is missing from the camp cabin. A sneaky mischief maker took it! We must follow the clues and find them before the campfire song starts.

1. Solve each math problem. The answer is a number, and the letter beside it is what that number stands for.
2. In the clue boxes, write that letter in every box showing the same number, then read the secret clue.
3. Use each clue to cross suspects off the list. The one suspect left at the end is the culprit!

**My answer: the mischief maker is** \_\_\_\_\_

## Possible suspects

Cross off a row as each clue rules it out. The one left at the end is the culprit.

| NAME | CAMP TOOL        | CAMP BADGE        | HAND SIGN           | HAIR COLOR       | CAMP FEAR        |
|------|------------------|-------------------|---------------------|------------------|------------------|
| Joy  | walkie talkie    | swift climbing    | left-handed writer  | jet black hair   | hates itchy mud  |
| Leo  | walkie talkie    | trail marking     | left-handed writer  | bright red hair  | afraid of frogs  |
| Max  | laser flashlight | swift climbing    | right-handed writer | bright red hair  | allergic to pine |
| Zac  | laser flashlight | trail marking     | left-handed writer  | jet black hair   | hates itchy mud  |
| Ned  | walkie talkie    | campfire building | left-handed writer  | bright red hair  | hates itchy mud  |
| Amy  | slingshot        | swift climbing    | left-handed writer  | dusty brown hair | hates itchy mud  |
| Wes  | walkie talkie    | rope tying        | left-handed writer  | bright red hair  | hates itchy mud  |
| Meg  | slingshot        | campfire building | left-handed writer  | bright red hair  | allergic to pine |
| Ivy  | grappling hook   | map reading       | right-handed writer | dusty brown hair | afraid of frogs  |
| Mia  | laser flashlight | trail marking     | left-handed writer  | bright red hair  | allergic to pine |
| Ben  | magnifying glass | swift climbing    | right-handed writer | bright red hair  | afraid of frogs  |
| Tad  | magnifying glass | rope tying        | left-handed writer  | bright red hair  | hates itchy mud  |
| Kai  | magnifying glass | trail marking     | left-handed writer  | bright red hair  | afraid of frogs  |
| Zoe  | magnifying glass | swift climbing    | right-handed writer | dusty brown hair | allergic to pine |
| Oli  | walkie talkie    | trail marking     | left-handed writer  | bright red hair  | hates itchy mud  |
| Roy  | magnifying glass | rope tying        | right-handed writer | bright red hair  | hates itchy mud  |
| Dan  | laser flashlight | map reading       | left-handed writer  | jet black hair   | hates itchy mud  |
| Gus  | grappling hook   | map reading       | left-handed writer  | bright red hair  | hates itchy mud  |
| Eli  | laser flashlight | campfire building | right-handed writer | bright red hair  | afraid of frogs  |
| Rex  | grappling hook   | map reading       | right-handed writer | bright red hair  | allergic to pine |
| Pip  | walkie talkie    | swift climbing    | right-handed writer | dusty brown hair | hates itchy mud  |

### CLUE 1

## Fractions of a number

We need to count the group of suspect scouts. A fraction of them went down the trail. Let us find out how many stayed.

Solve each problem, then write its letter in every clue box that shows the same number.

A 2x10 grid of boxes. The top row contains the following sequence: an orange box with 'T', three empty boxes, two empty boxes, one empty box, one empty box, one empty box, one empty box, one empty box, one empty box, one empty box, one empty box, one orange box with 'T', and four empty boxes. The bottom row contains the following sequence: eight empty boxes, four empty boxes, one empty box, one empty box, one empty box, one empty box, one empty box, one empty box, one empty box, and one empty box.

|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| T  |    |    |    |    |    |    |    |    |    |    |    | T  |    |    |    |    |    |    |
| 48 | 14 | 27 | 42 | 7  | 27 | 28 | 19 | 51 | 3  | 27 | 42 | 7  | 3  | 48 | 14 | 28 | 50 | 27 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 20 | 28 | 24 | 39 | 46 | 41 | 5  | 27 | 32 | 45 | 41 | 37 | 51 | 41 | 7  | 26 |    |    |    |

$2/4$  of 96 =   $\rightarrow$  **T**

2/10 of 95 =  → **K**

$5/8$  of 32 =   $\rightarrow$  **C**

$\frac{1}{4}$  of 112 =   $\rightarrow$  **A**

3/10 of 90 =  → **E**

$3/6$  of  $90 = \boxed{\phantom{000}} \rightarrow \boxed{\text{U}}$

$$\frac{1}{4} \text{ of } 20 = \boxed{\phantom{00}} \rightarrow \boxed{\text{R}}$$

$$\frac{1}{4} \text{ of } 56 = \boxed{\phantom{00}} \rightarrow \boxed{\text{H}}$$

$$\frac{1}{8} \text{ of } 56 = \boxed{\phantom{00}} \rightarrow \boxed{\text{N}}$$

$\frac{2}{3}$  of 39 =   $\rightarrow$  **G**

$\frac{1}{6}$  of 144 =   $\rightarrow$  **M**

4/6 of 75 =  → **V**

5/10 of 64 =   $\rightarrow$  **B**

5/10 of 82 =   $\rightarrow$

4/8 of 102 =  → **D**

$1/3$  of 126 =   $\rightarrow$  **S**

2/4 of 6 =  →

5/10 of 78 =  → **P**

2/6 of 138 =  → **F**

2/6 of 111 =  → **L**

Scratch space:

## CLUE 2

## Multi-step word problems

We found bags of lost gear. We added new ropes, then gave some away. Let us count what is left.

Solve each problem, then write its letter in the boxes to fill in the missing word.

A witness saw the villain was

|    |    |    |    |    |    |    |  |    |  |   |   |   |    |    |  |   |
|----|----|----|----|----|----|----|--|----|--|---|---|---|----|----|--|---|
| L  |    |    |    |    |    |    |  | D  |  | D | W | R | I  |    |  | R |
| 19 | 80 | 84 | 45 | 53 | 15 | 57 |  | 80 |  |   |   |   | 45 | 80 |  |   |

Scout Leader collected 13 compasses in the morning and 44 compasses in the afternoon, then split them equally among 3 Forest Rangers. How many compasses did each get?

Answer:  → **L**

There were 577 canteen bottles in all. 7 canteen bottles were set aside. The rest were shared equally among 10 Forest Rangers. How many canteen bottles did each get?

Answer:  → **N**

Scout Leader filled 5 boxes with 4 badges each, then found 33 more badges. How many badges are there in all?

Answer:  → **H**

Scout Leader filled 3 boxes with 2 compasses each, then found 78 more compasses. How many compasses are there in all?

Answer:  → **F**

Scout Leader filled 5 boxes with 3 canteen bottles each, then found 65 more canteen bottles. How many canteen bottles are there in all?

Answer:  → **E**

Scout Leader filled 2 boxes with 5 maps each, then found 35 more maps. How many maps are there in all?

Answer:  → **T**

There were 82 compasses in all. 1 Forest Rangers used 22 compasses each. The other 4 Forest Rangers shared the rest equally. How many compasses did each of the other Forest Rangers get?

Answer:  → **A**

Scratch space:

## CLUE 3

The scout climbed up the ladder and then slipped down. Use the steps to find where they landed.

Solve each problem, then write its letter in every clue box that shows the same number.

10 8 6 25 14 6 15 23 13 15 14 17 13 1 19 10 8 6 19 26 24

$$7 - (-3) = \boxed{\phantom{00}} \rightarrow \boxed{\text{T}}$$

$$(-2) + 8 = \boxed{\phantom{00}} \rightarrow \boxed{\text{E}}$$

$$(-1) + 27 = \boxed{\phantom{00}} \rightarrow \boxed{\text{U}}$$

$$(-10) + 18 = \boxed{\phantom{00}} \rightarrow \boxed{\text{H}}$$

$$(-5) + 30 = \boxed{\phantom{00}} \rightarrow \boxed{\text{S}}$$

$$2 - (-13) = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{A}}$$

$$(-11) + 12 = \boxed{\phantom{00}} \rightarrow \boxed{\text{O}}$$

$$12 - (-1) = \boxed{\phantom{00}} \rightarrow \boxed{\text{R}}$$

$10 - (-7) = \boxed{\phantom{00}} \rightarrow \boxed{\text{F}}$

$$21 - (-2) = \boxed{\phantom{00}} \rightarrow \boxed{\text{K}}$$

$$(-8) + 27 = \boxed{\phantom{00}} \rightarrow \boxed{\text{M}}$$

$$(-4) + 18 = \boxed{\phantom{00}} \rightarrow \boxed{\text{N}}$$

$$(-8) + 32 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{D}}$$

Scratch space:

## CLUE 4

## Percentages

Our walkie talkie has a battery bar. It shows how much power is left out of one hundred. Let us check it.

Solve each problem, then write its letter in every clue box that shows the same number.

|    |   |   |    |    |    |    |    |    |    |    |    |   |    |    |   |    |   |  |
|----|---|---|----|----|----|----|----|----|----|----|----|---|----|----|---|----|---|--|
| R  |   |   |    |    |    | R  |    |    | R  |    |    |   |    |    |   |    | R |  |
| 46 | 4 | 6 | 15 | 39 | 16 | 46 | 23 | 22 | 46 | 39 | 37 | 6 | 23 | 55 | 4 | 46 | 4 |  |

  

|    |    |    |    |   |    |    |    |    |    |    |
|----|----|----|----|---|----|----|----|----|----|----|
|    |    |    |    |   | R  |    |    |    |    |    |
| 21 | 37 | 22 | 15 | 4 | 54 | 46 | 39 | 37 | 59 | 15 |

$5\% \text{ of } 920 = \square \rightarrow \boxed{\text{R}}$

$20\% \text{ of } 20 = \square \rightarrow \boxed{\text{E}}$

$20\% \text{ of } 275 = \square \rightarrow \boxed{\text{W}}$

$20\% \text{ of } 110 = \square \rightarrow \boxed{\text{T}}$

$25\% \text{ of } 236 = \square \rightarrow \boxed{\text{C}}$

$10\% \text{ of } 390 = \square \rightarrow \boxed{\text{A}}$

$5\% \text{ of } 740 = \square \rightarrow \boxed{\text{N}}$

$10\% \text{ of } 60 = \square \rightarrow \boxed{\text{D}}$

$60\% \text{ of } 35 = \square \rightarrow \boxed{\text{O}}$

$25\% \text{ of } 64 = \square \rightarrow \boxed{\text{I}}$

$60\% \text{ of } 90 = \square \rightarrow \boxed{\text{B}}$

$20\% \text{ of } 115 = \square \rightarrow \boxed{\text{S}}$

$5\% \text{ of } 300 = \square \rightarrow \boxed{\text{H}}$

Scratch space:

**CLUE 5****Fractions of a number - the last clue**

We have a basket of shiny badges. Some are gold and some are silver. Let us find the part that shines.

First solve each problem. Then find each answer in the numbered list below and cross that sentence out. One sentence will be left - that is exactly what the villain did!

**Step 1 - solve these:**

$2/4 \text{ of } 12 = \boxed{\phantom{00}}$

$1/10 \text{ of } 30 = \boxed{\phantom{00}}$

$4/5 \text{ of } 5 = \boxed{\phantom{00}}$

$5/8 \text{ of } 8 = \boxed{\phantom{00}}$

$1/4 \text{ of } 40 = \boxed{\phantom{00}}$

$2/10 \text{ of } 10 = \boxed{\phantom{00}}$

$1/10 \text{ of } 10 = \boxed{\phantom{00}}$

$1/6 \text{ of } 66 = \boxed{\phantom{00}}$

$1/5 \text{ of } 40 = \boxed{\phantom{00}}$

$1/2 \text{ of } 18 = \boxed{\phantom{00}}$

$1/4 \text{ of } 28 = \boxed{\phantom{00}}$

**Step 2 - cross out the sentence with each answer:**

1. The villain swung by on a grappling hook, then secured the gate with rope tying.
2. The villain whispered secrets into a walkie talkie, then scrambled up a tree with swift climbing.
3. The villain whispered secrets into a walkie talkie, then marked a path with trail marking.
4. The villain searched the ground with a magnifying glass, then secured the gate with rope tying.
5. The villain whispered secrets into a walkie talkie, then sketched a route with map reading.
6. The villain swung by on a grappling hook, then sketched a route with map reading.
7. The villain flashed a bright laser flashlight, then marked a path with trail marking.
8. The villain swung by on a grappling hook, then lit up the campsite with campfire building.
9. The villain swung by on a grappling hook, then marked a path with trail marking.
10. The villain flashed a bright laser flashlight, then lit up the campsite with campfire building.
11. The villain searched the ground with a magnifying glass, then scrambled up a tree with swift climbing.
12. The villain whispered secrets into a walkie talkie, then secured the gate with rope tying.

# Answer Key

## The Golden Marshmallow Mystery

### Culprit: Wes

walkie talkie · rope tying · left-handed writer · bright red hair · hates itchy mud

Trail: Start 21 → Clue 1 18 → Clue 2 11 → Clue 3 8 → Clue 4 4 → Clue 5 1

### Clue 1 (Fractions of a number): "THE SNEAK DOES NOT HAVE CAMPFIRE BUILDING"

$\frac{2}{4}$  of 96 = 48 (T) ·  $\frac{2}{10}$  of 95 = 19 (K) ·  $\frac{5}{8}$  of 32 = 20 (C) ·  $\frac{1}{4}$  of 112 = 28 (A) ·  $\frac{3}{10}$  of 90 = 27 (E) ·  $\frac{3}{6}$  of 90 = 45 (U) ·  $\frac{1}{4}$  of 20 = 5 (R) ·  $\frac{1}{4}$  of 56 = 14 (H) ·  $\frac{1}{8}$  of 56 = 7 (N) ·  $\frac{2}{3}$  of 39 = 26 (G) ·  $\frac{1}{6}$  of 144 = 24 (M) ·  $\frac{4}{6}$  of 75 = 50 (V) ·  $\frac{5}{10}$  of 64 = 32 (B) ·  $\frac{5}{10}$  of 82 = 41 (I) ·  $\frac{4}{8}$  of 102 = 51 (D) ·  $\frac{1}{3}$  of 126 = 42 (S) ·  $\frac{2}{4}$  of 6 = 3 (O) ·  $\frac{5}{10}$  of 78 = 39 (P) ·  $\frac{2}{6}$  of 138 = 46 (F) ·  $\frac{2}{6}$  of 111 = 37 (L)

### Clue 2 (Multi-step word problems): "LEFT HANDED WRITER"

Scout Leader collected 13 compasses in the morning and 44 compasses in the afternoon, then split them equally among 3 Forest Rangers. How many compasses did each get? = 19 (L) · There were 577 canteen bottles in all. 7 canteen bottles were set aside. The rest were shared equally among 10 Forest Rangers. How many canteen bottles did each get? = 57 (N) · Scout Leader filled 5 boxes with 4 badges each, then found 33 more badges. How many badges are there in all? = 53 (H) · Scout Leader filled 3 boxes with 2 compasses each, then found 78 more compasses. How many compasses are there in all? = 84 (F) · Scout Leader filled 5 boxes with 3 canteen bottles each, then found 65 more canteen bottles. How many canteen bottles are there in all? = 80 (E) · Scout Leader filled 2 boxes with 5 maps each, then found 35 more maps. How many maps are there in all? = 45 (T) · There were 82 compasses in all. 1 Forest Rangers used 22 compasses each. The other 4 Forest Rangers shared the rest equally. How many compasses did each of the other Forest Rangers get? = 15 (A)

### Clue 3 (Integers): "THE SNEAK RAN FROM THE MUD"

$7 - (-3) = 10$  (T) ·  $(-2) + 8 = 6$  (E) ·  $(-1) + 27 = 26$  (U) ·  $(-10) + 18 = 8$  (H) ·  $(-5) + 30 = 25$  (S) ·  $2 - (-13) = 15$  (A) ·  $(-11) + 12 = 1$  (O) ·  $12 - (-1) = 13$  (R) ·  $10 - (-7) = 17$  (F) ·  $21 - (-2) = 23$  (K) ·  $(-8) + 27 = 19$  (M) ·  $(-4) + 18 = 14$  (N) ·  $(-8) + 32 = 24$  (D)

### Clue 4 (Percentages): "RED HAIR STRANDS WERE ON THE BRANCH"

5% of 920 = 46 (R) · 20% of 20 = 4 (E) · 20% of 275 = 55 (W) · 20% of 110 = 22 (T) · 25% of 236 = 59 (C) · 10% of 390 = 39 (A) · 5% of 740 = 37 (N) · 10% of 60 = 6 (D) · 60% of 35 = 21 (O) · 25% of 64 = 16 (I) · 60% of 90 = 54 (B) · 20% of 115 = 23 (S) · 5% of 300 = 15 (H)

### Clue 5 (Fractions of a number): surviving statement is box 12 → Wes

$\frac{2}{4}$  of 12 = 6 ·  $\frac{1}{10}$  of 30 = 3 ·  $\frac{4}{5}$  of 5 = 4 ·  $\frac{5}{8}$  of 8 = 5 ·  $\frac{1}{4}$  of 40 = 10 ·  $\frac{2}{10}$  of 10 = 2 ·  $\frac{1}{10}$  of 10 = 1 ·  $\frac{1}{6}$  of 66 = 11 ·  $\frac{1}{5}$  of 40 = 8 ·  $\frac{1}{2}$  of 18 = 9 ·  $\frac{1}{4}$  of 28 = 7