



The Mystery of the Golden Wrench

Grade 2 math · Place value, Addition, Subtraction, Multiplication, Missing addends · Reading level grades 1-2

Detective: _____ Date: _____

A wild rogue bot ran away with the golden wrench. We must look at the scrap parts and track them down before they build a giant rust monster.

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 rogue bot is _____

Possible suspects

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

NAME	MAIN ENGINE	SPECIAL TOOL	BLINKER SIDE	HEAD PIECE	SYSTEM HALT
Ada	laser eyes	buzzer nose	left-side blinker	silver foil spikes	loud music beats
Lovelace	wheel feet	buzzer nose	right-side blinker	blue plastic dome	loud music beats
Widget	magnet hands	drill arms	right-side blinker	blue plastic dome	strong fridge magnets
Bolt	springy legs	solar wings	left-side blinker	copper wire tuft	strong fridge magnets
Nutty	springy legs	crane hook	left-side blinker	silver foil spikes	strong fridge magnets
Clanky	magnet hands	buzzer nose	left-side blinker	silver foil spikes	strong fridge magnets
Byte	springy legs	crane hook	right-side blinker	silver foil spikes	strong fridge magnets
Vector	rocket boots	drill arms	left-side blinker	silver foil spikes	strong fridge magnets
Marvin	springy legs	crane hook	left-side blinker	copper wire tuft	strong fridge magnets
Gizmo	rocket boots	radar ears	left-side blinker	silver foil spikes	strong fridge magnets
Chip	magnet hands	drill arms	left-side blinker	silver foil spikes	strong fridge magnets
Gearbox	rocket boots	solar wings	left-side blinker	silver foil spikes	sticky oil puddles
Robbie	springy legs	solar wings	right-side blinker	silver foil spikes	strong fridge magnets
Sparky	springy legs	solar wings	left-side blinker	silver foil spikes	sticky oil puddles
Boop	springy legs	radar ears	right-side blinker	copper wire tuft	strong fridge magnets
Watson	wheel feet	radar ears	left-side blinker	blue plastic dome	sticky oil puddles
Beep	rocket boots	solar wings	right-side blinker	copper wire tuft	loud music beats
Sprocket	magnet hands	crane hook	left-side blinker	blue plastic dome	loud music beats
Isaac	wheel feet	drill arms	right-side blinker	blue plastic dome	loud music beats
Asimov	magnet hands	buzzer nose	left-side blinker	silver foil spikes	sticky oil puddles
Turing	rocket boots	crane hook	right-side blinker	blue plastic dome	strong fridge magnets

CLUE 1

S

39 78 54 12 61 90 80 54 27 61 39 84 61 54 32 88 61 39

78 47 64 54 47 27 80 52 52 54 12 88 61 32 54

A diagram consisting of a rectangular box on the left, followed by a right-pointing arrow, and then another rectangular box on the right containing the letter 'R'.

A diagram showing a transformation. On the left is a rounded rectangle containing a question mark. An arrow points to the right, where there is a square containing the letter 'G'.

Q → **B**

A diagram showing a rectangle on the left and a circle on the right, connected by a right-pointing arrow. The circle is centered within a square frame.

A diagram showing a box with an arrow pointing to a box labeled 'N'.

A diagram showing a mapping from an empty box to a box labeled v . The mapping is indicated by a right-pointing arrow.

? → **H**

A diagram illustrating a transformation. On the left is a simple rectangular box. An arrow points from this box to a second box on the right. The second box is identical in shape but contains the letter 'S' in a bold, black font.

? → **E**

A diagram showing a box with an arrow pointing to a box labeled 'Z'.

Q → ☒ U

A diagram showing a box with an arrow pointing to a box labeled A.

Q → **D**

S

CLUE 2 Addition

We counted the rusty bolts in two piles to find the code.

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

A									A		A							
80	58	98	55	59	51	38	38	38	80	58	80	71	62	98	59	83	51	75
29	59	55	66	51	62	51	33	55	38	98	56	51						

$50 + 30 = \square \rightarrow \text{A}$	$21 + 34 = \square \rightarrow \text{T}$	$40 + 18 = \square \rightarrow \text{W}$
$31 + 25 = \square \rightarrow \text{D}$	$8 + 21 = \square \rightarrow \text{O}$	$31 + 35 = \square \rightarrow \text{H}$
$59 + 39 = \square \rightarrow \text{I}$	$45 + 30 = \square \rightarrow \text{R}$	$22 + 49 = \square \rightarrow \text{B}$
$26 + 25 = \square \rightarrow \text{E}$	$38 + 24 = \square \rightarrow \text{L}$	$49 + 34 = \square \rightarrow \text{K}$
$20 + 13 = \square \rightarrow \text{F}$	$27 + 11 = \square \rightarrow \text{S}$	$36 + 23 = \square \rightarrow \text{N}$

Scratch space:

CLUE 3
Subtraction

The power tank lost some oil. We subtracted to see the leak.

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

T					T					T				T	
46	64	39	44	34	46	85	72	84	84	46	60	53	75	46	34
	T														T
84	46	69	34	35	71	21	69	77	65	71	39	30	72	71	35
															46
															84

$69 - 23 = \square \rightarrow \text{T}$	$96 - 19 = \square \rightarrow \text{I}$	$44 - 10 = \square \rightarrow \text{O}$
$73 - 4 = \square \rightarrow \text{R}$	$102 - 31 = \square \rightarrow \text{G}$	$63 - 33 = \square \rightarrow \text{M}$
$93 - 33 = \square \rightarrow \text{U}$	$73 - 9 = \square \rightarrow \text{H}$	$57 - 22 = \square \rightarrow \text{N}$
$74 - 30 = \square \rightarrow \text{B}$	$111 - 36 = \square \rightarrow \text{K}$	$91 - 19 = \square \rightarrow \text{A}$
$89 - 4 = \square \rightarrow \text{W}$	$93 - 9 = \square \rightarrow \text{S}$	$55 - 34 = \square \rightarrow \text{F}$
$73 - 20 = \square \rightarrow \text{C}$	$88 - 23 = \square \rightarrow \text{D}$	$73 - 34 = \square \rightarrow \text{E}$

Scratch space:

CLUE 4
Multiplication facts (1-12)

The robot charging station has four rows of plugs.

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

T					T													
45	66	63	20	27	45	25	88	27	48	48	63	25	100	10	16	50	63	88
60	27	10	16	100	48	10	4	63	100	66	63	88	63					

$9 \times 5 = \square \rightarrow \boxed{\text{T}}$

$8 \times 2 = \square \rightarrow \boxed{\text{L}}$

$4 \times 1 = \square \rightarrow \boxed{\text{K}}$

$10 \times 10 = \square \rightarrow \boxed{\text{S}}$

$5 \times 2 = \square \rightarrow \boxed{\text{I}}$

$3 \times 9 = \square \rightarrow \boxed{\text{O}}$

$8 \times 6 = \square \rightarrow \boxed{\text{P}}$

$7 \times 9 = \square \rightarrow \boxed{\text{E}}$

$6 \times 11 = \square \rightarrow \boxed{\text{H}}$

$6 \times 10 = \square \rightarrow \boxed{\text{F}}$

$5 \times 10 = \square \rightarrow \boxed{\text{V}}$

$5 \times 5 = \square \rightarrow \boxed{\text{D}}$

$5 \times 4 = \square \rightarrow \boxed{\text{B}}$

$8 \times 11 = \square \rightarrow \boxed{\text{R}}$

Scratch space:

CLUE 5**Missing addends - the last clue**

We need ten gear teeth. We have some but we need more.

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:

$4 + \underline{\quad} = 9$

$3 + \underline{\quad} = 6$

$7 + \underline{\quad} = 15$

$6 + \underline{\quad} = 13$

$10 + \underline{\quad} = 21$

$10 + \underline{\quad} = 14$

$7 + \underline{\quad} = 9$

$8 + \underline{\quad} = 9$

$1 + \underline{\quad} = 10$

$2 + \underline{\quad} = 12$

$1 + \underline{\quad} = 13$

Step 2 - cross out the sentence with each answer:

1. The villain rolls down the main hallway on fast wheel feet, then finds the secret exit using radar ears.
2. The villain leaps over the security gate with springy legs, then makes a loud honking sound with a buzzer nose.
3. The villain flies through the skylight using rocket boots, then finds the secret exit using radar ears.
4. The villain rolls down the main hallway on fast wheel feet, then digs a tunnel through the floor with drill arms.
5. The villain leaps over the security gate with springy legs, then swings up to the ceiling on a crane hook.
6. The villain flies through the skylight using rocket boots, then digs a tunnel through the floor with drill arms.
7. The villain zaps the vault door with hot laser eyes, then finds the secret exit using radar ears.
8. The villain snatches the metal safe with magnet hands, then digs a tunnel through the floor with drill arms.
9. The villain leaps over the security gate with springy legs, then finds the secret exit using radar ears.
10. The villain flies through the skylight using rocket boots, then glides away into the clouds with solar wings.
11. The villain rolls down the main hallway on fast wheel feet, then makes a loud honking sound with a buzzer nose.
12. The villain zaps the vault door with hot laser eyes, then makes a loud honking sound with a buzzer nose.

Answer Key

The Mystery of the Golden Wrench

Culprit: Vector

rocket boots · drill arms · left-side blinker · silver foil spikes · strong fridge magnets

Trail: Start 21 → Clue 1 17 → Clue 2 10 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Place value): "THE ROGUE BOT DOES NOT HAVE A BUZZER NOSE"

What number has 3 tens and 9 ones? = 39 (T) · What number has 1 ten and 2 ones? = 12 (R) · What number has 9 tens and 0 ones? = 90 (G) · What number has 2 tens and 7 ones? = 27 (B) · What number has 6 tens and 1 one? = 61 (O) · What number has 8 tens and 8 ones? = 88 (N) · What number has 6 tens and 4 ones? = 64 (V) · What number has 7 tens and 8 ones? = 78 (H) · What number has 3 tens and 2 ones? = 32 (S) · What number has 5 tens and 4 ones? = 54 (E) · What number has 5 tens and 2 ones? = 52 (Z) · What number has 8 tens and 0 ones? = 80 (U) · What number has 4 tens and 7 ones? = 47 (A) · What number has 8 tens and 4 ones? = 84 (D)

Clue 2 (Addition): "A WITNESS SAW A BLINKER ON THE LEFT SIDE"

$50 + 30 = 80$ (A) · $21 + 34 = 55$ (T) · $40 + 18 = 58$ (W) · $31 + 25 = 56$ (D) · $8 + 21 = 29$ (O) · $31 + 35 = 66$ (H) · $59 + 39 = 98$ (I) · $45 + 30 = 75$ (R) · $22 + 49 = 71$ (B) · $26 + 25 = 51$ (E) · $38 + 24 = 62$ (L) · $49 + 34 = 83$ (K) · $20 + 13 = 33$ (F) · $27 + 11 = 38$ (S) · $36 + 23 = 59$ (N)

Clue 3 (Subtraction): "THE BOT WAS STUCK TO STRONG FRIDGE MAGNETS"

$69 - 23 = 46$ (T) · $96 - 19 = 77$ (I) · $44 - 10 = 34$ (O) · $73 - 4 = 69$ (R) · $102 - 31 = 71$ (G) · $63 - 33 = 30$ (M) · $93 - 33 = 60$ (U) · $73 - 9 = 64$ (H) · $57 - 22 = 35$ (N) · $74 - 30 = 44$ (B) · $111 - 36 = 75$ (K) · $91 - 19 = 72$ (A) · $89 - 4 = 85$ (W) · $93 - 9 = 84$ (S) · $55 - 34 = 21$ (F) · $73 - 20 = 53$ (C) · $88 - 23 = 65$ (D) · $73 - 34 = 39$ (E)

Clue 4 (Multiplication facts (1-12)): "THE BOT DROPPED SILVER FOIL SPIKES HERE"

$9 \times 5 = 45$ (T) · $8 \times 2 = 16$ (L) · $4 \times 1 = 4$ (K) · $10 \times 10 = 100$ (S) · $5 \times 2 = 10$ (I) · $3 \times 9 = 27$ (O) · $8 \times 6 = 48$ (P) · $7 \times 9 = 63$ (E) · $6 \times 11 = 66$ (H) · $6 \times 10 = 60$ (F) · $5 \times 10 = 50$ (V) · $5 \times 5 = 25$ (D) · $5 \times 4 = 20$ (B) · $8 \times 11 = 88$ (R)

Clue 5 (Missing addends): surviving statement is box 6 → Vector

$4 + \underline{\quad} = 9 = 5$ · $3 + \underline{\quad} = 6 = 3$ · $7 + \underline{\quad} = 15 = 8$ · $6 + \underline{\quad} = 13 = 7$ · $10 + \underline{\quad} = 21 = 11$ · $10 + \underline{\quad} = 14 = 4$ · $7 + \underline{\quad} = 9 = 2$ · $8 + \underline{\quad} = 9 = 1$ · $1 + \underline{\quad} = 10 = 9$ · $2 + \underline{\quad} = 12 = 10$ · $1 + \underline{\quad} = 13 = 12$