



The Great Mascot Turnip Swap

Grade 10 math · Pythagorean theorem, Word problems, Multi-step word problems, Bar models, Division · Reading level grades 7-9

Detective: _____ Date: _____

Right before the championship rivalry game, someone sneaked into the locker room and replaced the school mascot suit with a giant foam turnip! Detective Ryan, Donnie, Roman, Dominick, and Kailynn are on the case to track down the mischievous culprit.

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 Prankster is _____

Possible suspects

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

NAME	PRANK GADGET	ESCAPE GEAR	EYEWEAR	HAIR COLOR	SECRET WEAKNESS
Roman Roamer	Silly String Laser	Jetpack	Wears Glasses	Bright Orange Hair	Bad Jokes
Donnie Dynamite	Glitter Launcher	Jetpack	No Glasses	Neon Green Hair	Tickle Attacks
Kailynn Spark	Stink Bomb Blaster	Invisibility Cloak	No Glasses	Bright Orange Hair	Sourdough Bread
Ryan Flash	Silly String Laser	Jetpack	Wears Glasses	Bright Orange Hair	Tickle Attacks
Dominick Danger	Silly String Laser	Jetpack	No Glasses	Bright Orange Hair	Tickle Attacks
Donnie Darko	Confetti Cannon	Invisibility Cloak	Wears Glasses	Bright Orange Hair	Bad Jokes
Dominick Domino	Glitter Launcher	Grappling Hook	Wears Glasses	Neon Green Hair	Sourdough Bread
Dominick Drive	Glitter Launcher	Invisibility Cloak	Wears Glasses	Neon Green Hair	Tickle Attacks
Donnie Dash	Glitter Launcher	Smoke Pellets	No Glasses	Neon Green Hair	Bad Jokes
Donnie Dolittle	Confetti Cannon	Grappling Hook	No Glasses	Bright Orange Hair	Sourdough Bread
Roman Rebel	Silly String Laser	Invisibility Cloak	No Glasses	Neon Green Hair	Bad Jokes
Kailynn Storm	Confetti Cannon	Invisibility Cloak	No Glasses	Bright Orange Hair	Tickle Attacks
Kailynn Comets	Whoopee Cushion Grenade	Smoke Pellets	No Glasses	Bright Orange Hair	Tickle Attacks
Ryan Osaurus	Whoopee Cushion Grenade	Grappling Hook	No Glasses	Purple Hair	Bad Jokes
Ryan Rockets	Stink Bomb Blaster	Jetpack	No Glasses	Bright Orange Hair	Tickle Attacks
Donnie Dazzle	Glitter Launcher	Hover Shoes	No Glasses	Neon Green Hair	Tickle Attacks
Dominick Disco	Glitter Launcher	Invisibility Cloak	No Glasses	Neon Green Hair	Sourdough Bread
Ryan Mighty	Glitter Launcher	Hover Shoes	Wears Glasses	Neon Green Hair	Sourdough Bread
Dominick Submarine	Confetti Cannon	Invisibility Cloak	No Glasses	Bright Orange Hair	Bad Jokes
Roman Warrior	Stink Bomb Blaster	Grappling Hook	No Glasses	Bright Orange Hair	Tickle Attacks
Roman Candle	Silly String Laser	Hover Shoes	No Glasses	Neon Green Hair	Sourdough Bread

CLUE 1

To compare the suspect height ratios on our forensic chart, we built bar models from cafeteria surveillance frames.

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

75 41 74 30 13 82 82 125 13 40 20 37 74 116 40 37 75

25 116 74 116 52 37 65 74 58 74 82 82 74 75 116

legs 21 and 72, hypotenuse = $\rightarrow$ **T**

legs 18 and 80, hypotenuse = $\rightarrow$ **L**

legs 12 and 35, hypotenuse = →

legs 5 and 12, hypotenuse = $\rightarrow$

legs 80 and 84, hypotenuse = $\rightarrow$ **S**

legs 9 and 40, hypotenuse = → **H**

legs 25 and 60, hypotenuse = $\rightarrow$ **K**

legs 15 and 20, hypotenuse = $\rightarrow$ **U**

legs 24 and 32, hypotenuse = → **N**

legs 18 and 24, hypotenuse = → **V**

legs 40 and 42, hypotenuse = $\rightarrow$ **P**

legs 24 and 70, hypotenuse = → **E**

legs 12 and 16, hypotenuse = $\rightarrow$ **D**

legs 35 and 120, hypotenuse = → **A**

legs 20 and 48, hypotenuse = → **M**

Scratch space:

CLUE 2

Word problems

The prankster left a puzzling locker note filled with word problems about missing sports gear.

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

A witness saw the villain was

N								
43	80	65	24	103	81	81	66	81

.

There were 75 silly strings. 32 were used up. How many silly strings are left?

Answer: → **N**

Prankster Detective found 32 confetti poppers yesterday and 49 more today. How many confetti poppers in all?

Answer: → **S**

Prankster Detective lined up 4 rows of 6 turnips. How many turnips in all?

Answer: → **L**

Prankster Detective found 36 confetti poppers yesterday and 30 more today. How many confetti poppers in all?

Answer: → **E**

Prankster Detective found 41 silly strings yesterday and 62 more today. How many silly strings in all?

Answer: → **A**

Prankster Detective lined up 10 rows of 8 whistles. How many whistles in all?

Answer: → **O**

There were 91 silly strings. 26 were used up. How many silly strings are left?

Answer: → **G**

Scratch space:

CLUE 3

Multi-step word problems

Unraveling the suspect timetable required solving multistep word problems about school bus arrivals and hallway stops.

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

Someone scared the villain off with T T T S .

8 56 65 18 84 77 81 8 8 81 65 18

Prankster Detective collected 6 foam fingers in the morning and 26 foam fingers in the afternoon, then split them equally among 4 Hallway Squad. How many foam fingers did each get?

Answer: → T

There were 200 turnips in all. 2 Hallway Squad used 19 turnips each. The other 2 Hallway Squad shared the rest equally. How many turnips did each of the other Hallway Squad get?

Answer: → A

Prankster Detective earned 2 foam fingers in each of 2 rounds, plus 75 bonus foam fingers. Then 14 foam fingers were lost. How many foam fingers are left?

Answer: → C

Prankster Detective collected 177 turnips in the morning and 159 turnips in the afternoon, then split them equally among 6 Hallway Squad. How many turnips did each get?

Answer: → I

Prankster Detective filled 4 boxes with 4 silly strings each, then found 2 more silly strings. How many silly strings are there in all?

Answer: → K

Prankster Detective filled 4 boxes with 2 confetti poppers each, then found 76 more confetti poppers. How many confetti poppers are there in all?

Answer: → L

Prankster Detective collected 302 foam fingers in the morning and 160 foam fingers in the afternoon, then split them equally among 6 Hallway Squad. How many foam fingers did each get?

Answer: → E

Scratch space:

CLUE 4 Bar model word problems

We measured the exact diagonal escape path from the hallway corner to the mascot crate using the Pythagorean theorem.

Draw a bar model to solve each word problem, then write its letter in the boxes to fill in the missing word.

A strand of  hair turned up at the scene.

Prankster Detective has 6 times as many turnips as a teammate. The teammate has 6 turnips. How many turnips does Prankster Detective have?

draw a bar model

Answer: → **B**

There were 69 whistles in all. 23 whistles were used. How many whistles are left?

draw a bar model

Answer: → **T**

There were 139 turnips in all. 15 turnips were used. How many turnips are left?

draw a bar model

Answer: → **G**

Prankster Detective has 96 whistles, packed 2 to a bag.
How many bags can be filled?

draw a bar model

Answer: → **H**

Prankster Detective used $\frac{2}{4}$ of the confetti poppers on the first day. The other 50 confetti poppers were used the next day. How many confetti poppers were there in all?

draw a bar model

Answer: → ☒

Prankster Detective has 208 turnips, packed 2 to a bag.
How many bags can be filled?

draw a bar model

Answer: → ☒

There were 34 whistles in all. 23 whistles were used. How many whistles are left?

draw a bar model

Answer: → **R**

CLUE 5**Division facts (1-12) - the last clue**

To split the remaining footprint evidence cards evenly among our detective teams, we used division.

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:

$36 \div 12 = \boxed{}$

$12 \div 2 = \boxed{}$

$36 \div 4 = \boxed{}$

$64 \div 8 = \boxed{}$

$132 \div 12 = \boxed{}$

$48 \div 12 = \boxed{}$

$10 \div 10 = \boxed{}$

$84 \div 12 = \boxed{}$

$144 \div 12 = \boxed{}$

$20 \div 10 = \boxed{}$

$60 \div 6 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain fired a silly string laser, then vanished behind smoke pellets.
2. The villain launched a glitter launcher, then escaped using hover shoes.
3. The villain threw a stink bomb blaster, then flew away on a jetpack.
4. The villain fired a silly string laser, then zipped off with a grappling hook.
5. The villain blasted a confetti cannon, then stealthed off in an invisibility cloak.
6. The villain threw a stink bomb blaster, then zipped off with a grappling hook.
7. The villain dropped a whoopee cushion grenade, then zipped off with a grappling hook.
8. The villain fired a silly string laser, then escaped using hover shoes.
9. The villain fired a silly string laser, then flew away on a jetpack.
10. The villain dropped a whoopee cushion grenade, then vanished behind smoke pellets.
11. The villain dropped a whoopee cushion grenade, then stealthed off in an invisibility cloak.
12. The villain threw a stink bomb blaster, then vanished behind smoke pellets.

Answer Key

The Great Mascot Turnip Swap

Culprit: Kailynn Storm

Confetti Cannon · Invisibility Cloak · No Glasses · Bright Orange Hair · Tickle Attacks

Trail: Start 21 → Clue 1 19 → Clue 2 13 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Pythagorean theorem): "THE VILLAIN DOES NOT USE SMOKE PELLETS"

legs 21 and 72, hypotenuse = 75 (T) · legs 18 and 80, hypotenuse = 82 (L) · legs 12 and 35, hypotenuse = 37 (O) · legs 5 and 12, hypotenuse = 13 (I) · legs 80 and 84, hypotenuse = 116 (S) · legs 9 and 40, hypotenuse = 41 (H) · legs 25 and 60, hypotenuse = 65 (K) · legs 15 and 20, hypotenuse = 25 (U) · legs 24 and 32, hypotenuse = 40 (N) · legs 18 and 24, hypotenuse = 30 (V) · legs 40 and 42, hypotenuse = 58 (P) · legs 24 and 70, hypotenuse = 74 (E) · legs 12 and 16, hypotenuse = 20 (D) · legs 35 and 120, hypotenuse = 125 (A) · legs 20 and 48, hypotenuse = 52 (M)

Clue 2 (Word problems): "NO GLASSES"

There were 75 silly strings. 32 were used up. How many silly strings are left? = 43 (N) · Prankster Detective found 32 confetti poppers yesterday and 49 more today. How many confetti poppers in all? = 81 (S) · Prankster Detective lined up 4 rows of 6 turnips. How many turnips in all? = 24 (L) · Prankster Detective found 36 confetti poppers yesterday and 30 more today. How many confetti poppers in all? = 66 (E) · Prankster Detective found 41 silly strings yesterday and 62 more today. How many silly strings in all? = 103 (A) · Prankster Detective lined up 10 rows of 8 whistles. How many whistles in all? = 80 (O) · There were 91 silly strings. 26 were used up. How many silly strings are left? = 65 (G)

Clue 3 (Multi-step word problems): "TICKLE ATTACKS"

Prankster Detective collected 6 foam fingers in the morning and 26 foam fingers in the afternoon, then split them equally among 4 Hallway Squad. How many foam fingers did each get? = 8 (T) · There were 200 turnips in all. 2 Hallway Squad used 19 turnips each. The other 2 Hallway Squad shared the rest equally. How many turnips did each of the other Hallway Squad get? = 81 (A) · Prankster Detective earned 2 foam fingers in each of 2 rounds, plus 75 bonus foam fingers. Then 14 foam fingers were lost. How many foam fingers are left? = 65 (C) · Prankster Detective collected 177 turnips in the morning and 159 turnips in the afternoon, then split them equally among 6 Hallway Squad. How many turnips did each get? = 56 (I) · Prankster Detective filled 4 boxes with 4 silly strings each, then found 2 more silly strings. How many silly strings are there in all? = 18 (K) · Prankster Detective filled 4 boxes with 2 confetti poppers each, then found 76 more confetti poppers. How many confetti poppers are there in all? = 84 (L) · Prankster Detective collected 302 foam fingers in the morning and 160 foam fingers in the afternoon, then split them equally among 6 Hallway Squad. How many foam fingers did each get? = 77 (E)

Clue 4 (Bar model word problems): "BRIGHT ORANGE HAIR"

Prankster Detective has 6 times as many turnips as a teammate. The teammate has 6 turnips. How many turnips does Prankster Detective have? = 36 (B) · There were 69 whistles in all. 23 whistles were used. How many whistles are left? = 46 (T) · There were 139 turnips in all. 15 turnips were used. How many turnips are left? = 124 (G) · Prankster Detective has 96 whistles, packed 2 to a bag. How many bags can be filled? = 48 (H) · Prankster Detective used $\frac{2}{4}$ of the confetti poppers on the first day. The other 50 confetti poppers were used the next day. How many confetti poppers were there in all? = 100 (O) · Prankster Detective has 208 turnips, packed 2 to a bag. How many bags can be filled? = 104 (I) · There were 34 whistles in all. 23 whistles were used. How many whistles are left? = 11 (R)

Clue 5 (Division facts (1-12)): surviving statement is box 5 → Kailynn Storm

$36 \div 12 = 3$ · $12 \div 2 = 6$ · $36 \div 4 = 9$ · $64 \div 8 = 8$ · $132 \div 12 = 11$ · $48 \div 12 = 4$ · $10 \div 10 = 1$ · $84 \div 12 = 7$ · $144 \div 12 = 12$ · $20 \div 10 = 2$ · $60 \div 6 = 10$