The Cosmic Crystal Caper

Grade 5 math · Place value, Addition, Subtraction, Multiplication, Division · Reading level grades 5-6

Detective: _____ **Date:** _____

A sneaky intruder snuck into Lunar Outpost Alpha and snatched the power core! Station Commander Vance called Star Command to track down the suspect before they leap out of orbit.

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 Space Renegade is _____

Possible suspects

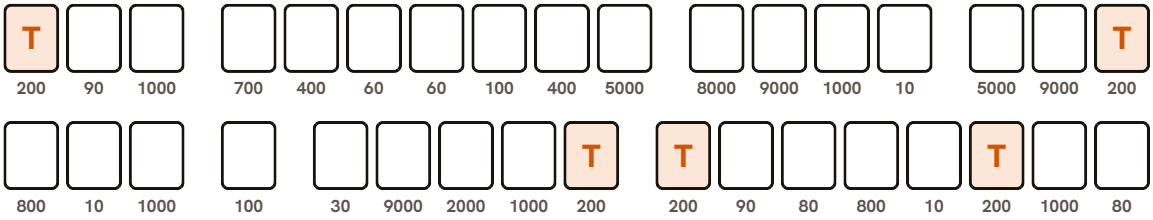
Cross off a row as each clue rules it out. The one left at the end is the culprit.

NAME	MAIN GADGET	SUIT FEATURE	GLOVE STYLE	HELMET TRIM	COUNTER WEAPON
Charles Bolden	Gravity Warp	Tractor Beam	Left Glove Badge	Neon Antenna	Prism Flash
John Glenn	Starlight Beam	Comet Thruster	Left Glove Badge	Neon Antenna	Magnet Pulse
Valentina Tereshkova	Plasma Jet	Comet Thruster	Left Glove Badge	Silver Crest	Magnet Pulse
Peggy Whitson	Gravity Warp	Tractor Beam	Left Glove Badge	Neon Antenna	Magnet Pulse
Chris Hadfield	Gravity Warp	Hyperdrive Boost	Right Glove Badge	Neon Antenna	Magnet Pulse
Kalpana Chawla	Starlight Beam	Asteroid Armor	Left Glove Badge	Silver Crest	Magnet Pulse
Robert Crippen	Gravity Warp	Tractor Beam	Left Glove Badge	Silver Crest	Sonic Wave
Ellen Ochoa	Laser Cutter	Asteroid Armor	Left Glove Badge	Neon Antenna	Magnet Pulse
Neil Armstrong	Gravity Warp	Asteroid Armor	Right Glove Badge	Blue Visor Stripe	Sonic Wave
Buzz Aldrin	Gravity Warp	Asteroid Armor	Right Glove Badge	Silver Crest	Magnet Pulse
Michael Collins	Starlight Beam	Tractor Beam	Left Glove Badge	Neon Antenna	Magnet Pulse
Christina Koch	Starlight Beam	Solar Sail	Right Glove Badge	Blue Visor Stripe	Prism Flash
Mae Jemison	Gravity Warp	Asteroid Armor	Left Glove Badge	Neon Antenna	Sonic Wave
Eileen Collins	Laser Cutter	Solar Sail	Left Glove Badge	Silver Crest	Magnet Pulse
Sally Ride	Starlight Beam	Asteroid Armor	Left Glove Badge	Silver Crest	Sonic Wave
Guion Bluford	Nebula Shield	Hyperdrive Boost	Right Glove Badge	Neon Antenna	Sonic Wave
Leland Melvin	Starlight Beam	Hyperdrive Boost	Right Glove Badge	Blue Visor Stripe	Magnet Pulse
Franklin Chang Diaz	Starlight Beam	Solar Sail	Left Glove Badge	Blue Visor Stripe	Magnet Pulse
Jessica Meir	Plasma Jet	Asteroid Armor	Left Glove Badge	Neon Antenna	Magnet Pulse
Bernard Harris	Nebula Shield	Solar Sail	Left Glove Badge	Silver Crest	Prism Flash
Sunita Williams	Starlight Beam	Hyperdrive Boost	Left Glove Badge	Blue Visor Stripe	Magnet Pulse

CLUE 1 Place value

Commander Vance examined the place values on the computer lock to reveal a clue about the suspect.

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



What is the value of the 2 in 70,213? ☐ → T

What is the value of the 6 in 53,262? ☐ → L

What is the value of the 1 in 60,199? ☐ → A

What is the value of the 8 in 370,485? ☐ → R

What is the value of the 3 in 478,437? ☐ → C

What is the value of the 1 in 604,716? ☐ → S

What is the value of the 8 in 978,936? ☐ → D

What is the value of the 9 in 29,250? ☐ → O

What is the value of the 9 in 16,597? ☐ → H

What is the value of the 5 in 845,308? ☐ → N

What is the value of the 7 in 395,795? ☐ → V

What is the value of the 1 in 71,723? ☐ → E

What is the value of the 4 in 250,461? ☐ → I

What is the value of the 8 in 397,806? ☐ → U

What is the value of the 2 in 52,893? ☐ → M

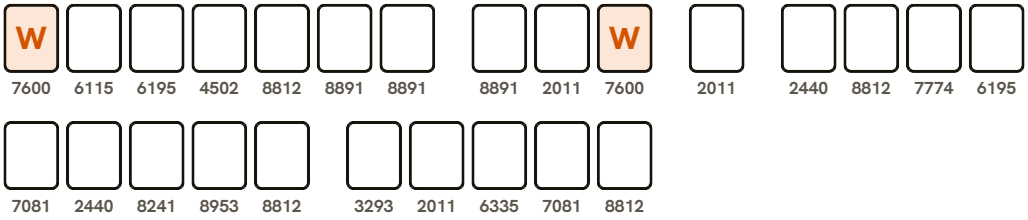
Scratch space:

CLUE 2

Addition

Cadet Nova added up the total damaged supply crates near the airlock to uncover another piece of evidence.

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



2461 + 5139 = ☐ → W

4361 + 4592 = ☐ → V

3698 + 2637 = ☐ → D

3070 + 4011 = ☐ → G

5672 + 2569 = ☐ → O

1614 + 2888 = ☐ → N

4449 + 4442 = ☐ → S

2914 + 3281 = ☐ → T

2462 + 3653 = ☐ → I

1104 + 1336 = ☐ → L

1569 + 1724 = ☐ → B

4663 + 3111 = ☐ → F

877 + 1134 = ☐ → A

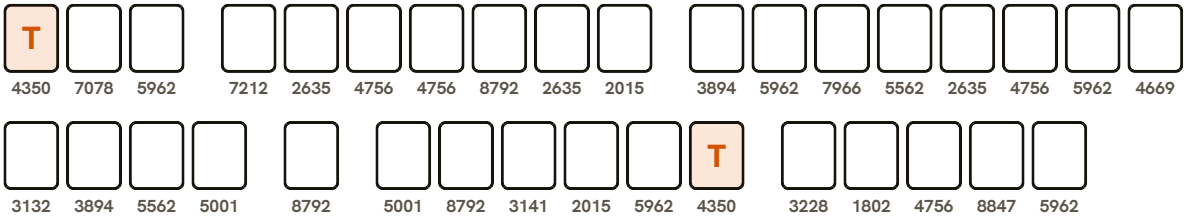
4510 + 4302 = ☐ → E

Scratch space:

CLUE 3 Subtraction

Officer Orion subtracted the remaining fuel levels to calculate how much power the intruder drained.

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



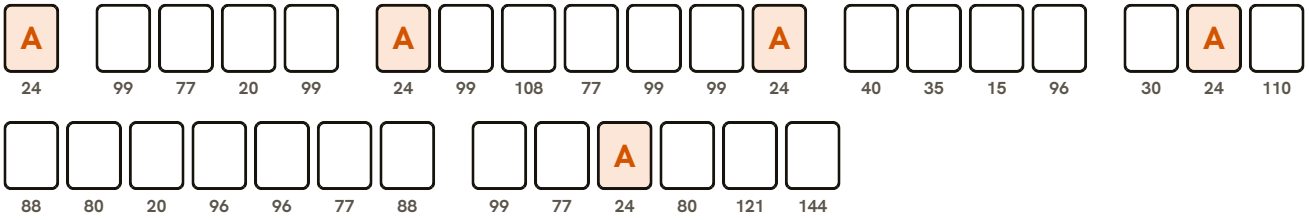
6356 - 2006 = ☐ → T	5403 - 2175 = ☐ → P	5829 - 3194 = ☐ → I
11603 - 4391 = ☐ → V	5518 - 849 = ☐ → D	10879 - 2913 = ☐ → C
8482 - 1404 = ☐ → H	6714 - 4699 = ☐ → N	3201 - 69 = ☐ → F
9813 - 4251 = ☐ → O	9924 - 3962 = ☐ → E	7749 - 3855 = ☐ → R
8479 - 3478 = ☐ → M	12611 - 3819 = ☐ → A	3626 - 485 = ☐ → G
7015 - 2259 = ☐ → L	3074 - 1272 = ☐ → U	10447 - 1600 = ☐ → S

Scratch space:

CLUE 4 Multiplication facts (1-12)

Dr. Vega multiplied the rows of solar panels to find the hidden scanner code.

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



3 × 8 = ☐ → A	6 × 5 = ☐ → W	12 × 8 = ☐ → P
11 × 11 = ☐ → B	11 × 9 = ☐ → N	5 × 4 = ☐ → O
5 × 7 = ☐ → H	8 × 10 = ☐ → R	9 × 12 = ☐ → T
12 × 12 = ☐ → Y	8 × 11 = ☐ → D	5 × 8 = ☐ → C
3 × 5 = ☐ → I	7 × 11 = ☐ → E	10 × 11 = ☐ → S

Scratch space:

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

> Agent Ray divided the decrypted log files equally among the scanner stations to decode the final clue.

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:

120 ÷ 10 = ☐ | 84 ÷ 12 = ☐ | 55 ÷ 5 = ☐ | 10 ÷ 2 = ☐ | 16 ÷ 2 = ☐

22 ÷ 11 = ☐ | 8 ÷ 2 = ☐ | 110 ÷ 11 = ☐ | 36 ÷ 6 = ☐ | 63 ÷ 7 = ☐

6 ÷ 6 = ☐

Step 2 - cross out the sentence with each answer:

1. The villain warped the gravity grid, then sped away on a comet thruster.
2. The villain sliced through the vault lock, then glided clear using a solar sail.
3. The villain blinded the sensor turrets, then snagged the cargo using a tractor beam.
4. The villain blocked incoming transmissions, then deflected defenses with asteroid armor.
5. The villain blinded the sensor turrets, then sped away on a comet thruster.
6. The villain blasted past security doors, then sped away on a comet thruster.
7. The villain sliced through the vault lock, then deflected defenses with asteroid armor.
8. The villain blasted past security doors, then glided clear using a solar sail.
9. The villain blocked incoming transmissions, then glided clear using a solar sail.
10. The villain blocked incoming transmissions, then snagged the cargo using a tractor beam.
11. The villain warped the gravity grid, then snagged the cargo using a tractor beam.
12. The villain blasted past security doors, then deflected defenses with asteroid armor.

TEACHER / PARENT

Answer Key

The Cosmic Crystal Caper

Culprit: Michael Collins

Starlight Beam · Tractor Beam · Left Glove Badge · Neon Antenna · Magnet Pulse

Trail: Start 21 → Clue 1 19 → Clue 2 13 → Clue 3 8 → Clue 4 4 → Clue 5 1

Clue 1 (Place value): "THE VILLAIN DOES NOT USE A COMET THRUSTER"

What is the value of the 2 in 70,213? = 200 (T) · What is the value of the 6 in 53,262? = 60 (L) · What is the value of the 1 in 60,199? = 100 (A) · What is the value of the 8 in 370,485? = 80 (R) · What is the value of the 3 in 478,437? = 30 (C) · What is the value of the 1 in 604,716? = 10 (S) · What is the value of the 8 in 978,936? = 8000 (D) · What is the value of the 9 in 29,250? = 9000 (O) · What is the value of the 9 in 16,597? = 90 (H) · What is the value of the 5 in 845,308? = 5000 (N) · What is the value of the 7 in 395,795? = 700 (V) · What is the value of the 1 in 71,723? = 1000 (E) · What is the value of the 4 in 250,461? = 400 (I) · What is the value of the 8 in 397,806? = 800 (U) · What is the value of the 2 in 52,893? = 2000 (M)

Clue 2 (Addition): "WITNESS SAW A LEFT GLOVE BADGE"

2461 + 5139 = 7600 (W) · 4361 + 4592 = 8953 (V) · 3698 + 2637 = 6335 (D) · 3070 + 4011 = 7081 (G) · 5672 + 2569 = 8241 (O) · 1614 + 2888 = 4502 (N) · 4449 + 4442 = 8891 (S) · 2914 + 3281 = 6195 (T) · 2462 + 3653 = 6115 (I) · 1104 + 1336 = 2440 (L) · 1569 + 1724 = 3293 (B) · 4663 + 3111 = 7774 (F) · 877 + 1134 = 2011 (A) · 4510 + 4302 = 8812 (E)

Clue 3 (Subtraction): "THE VILLAIN RECOILED FROM A MAGNET PULSE"

6356 - 2006 = 4350 (T) · 5403 - 2175 = 3228 (P) · 5829 - 3194 = 2635 (I) · 11603 - 4391 = 7212 (V) · 5518 - 849 = 4669 (D) · 10879 - 2913 = 7966 (C) · 8482 - 1404 = 7078 (H) · 6714 - 4699 = 2015 (N) · 3201 - 69 = 3132 (F) · 9813 - 4251 = 5562 (O) · 9924 - 3962 = 5962 (E) · 7749 - 3855 = 3894 (R) · 8479 - 3478 = 5001 (M) · 12611 - 3819 = 8792 (A) · 3626 - 485 = 3141 (G) · 7015 - 2259 = 4756 (L) · 3074 - 1272 = 1802 (U) · 10447 - 1600 = 8847 (S)

Clue 4 (Multiplication facts (1-12)): "A NEON ANTENNA CHIP WAS DROPPED NEARBY"

3 × 8 = 24 (A) · 6 × 5 = 30 (W) · 12 × 8 = 96 (P) · 11 × 11 = 121 (B) · 11 × 9 = 99 (N) · 5 × 4 = 20 (O) · 5 × 7 = 35 (H) · 8 × 10 = 80 (R) · 9 × 12 = 108 (T) · 12 × 12 = 144 (Y) · 8 × 11 = 88 (D) · 5 × 8 = 40 (C) · 3 × 5 = 15 (I) · 7 × 11 = 77 (E) · 10 × 11 = 110 (S)

Clue 5 (Division facts (1-12)): surviving statement is box 3 → Michael Collins

120 ÷ 10 = 12 · 84 ÷ 12 = 7 · 55 ÷ 5 = 11 · 10 ÷ 2 = 5 · 16 ÷ 2 = 8 · 22 ÷ 11 = 2 · 8 ÷ 2 = 4 · 110 ÷ 11 = 10 · 36 ÷ 6 = 6 · 63 ÷ 7 = 9 · 6 ÷ 6 = 1