



The Mars Outpost Heist

Grade 3 math · Place value, Addition, Subtraction, Rounding, Missing addends · Reading level grades 5-6

Detective: _____ Date: _____

A rogue pilot has stolen the Lunar Core Blueprint from the Stellaris Outpost on Mars! Our Chief Astrophysicist needs your help to decode the clues and track down the suspect before they warp out of the galaxy.

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 pilot is _____

Possible suspects

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

NAME	THRUSTER TYPE	VISOR UPGRADE	JOYSTICK GRIP	HELMET CREST	SENSOR BLOCK
Guion Bluford	solar sails	thermal radar	left handed joystick grip	neon orange crest	solar wind flare
Chris Hadfield	ion engines	nebula filter	left handed joystick grip	laser blue crest	solar wind flare
Carl Sagan	plasma flares	nebula filter	right handed joystick grip	cosmic green crest	gravity well pulse
Neil Armstrong	ion engines	xray scanner	left handed joystick grip	laser blue crest	solar wind flare
Sally Ride	solar sails	thermal radar	right handed joystick grip	neon orange crest	solar wind flare
Edwin Hubble	warp drives	thermal radar	left handed joystick grip	laser blue crest	gravity well pulse
Alexei Leonov	solar sails	nebula filter	left handed joystick grip	laser blue crest	gravity well pulse
Gherman Titov	fusion sparks	xray scanner	right handed joystick grip	laser blue crest	solar wind flare
Tycho Brahe	plasma flares	thermal radar	left handed joystick grip	neon orange crest	gravity well pulse
Maria Mitchell	solar sails	glare shield	left handed joystick grip	laser blue crest	solar wind flare
Vera Rubin	plasma flares	glare shield	left handed joystick grip	cosmic green crest	magnetic dust storm
Valentina Tereshkova	plasma flares	night vision	left handed joystick grip	laser blue crest	gravity well pulse
Michael Collins	plasma flares	thermal radar	left handed joystick grip	neon orange crest	magnetic dust storm
Alan Shepard	solar sails	thermal radar	right handed joystick grip	neon orange crest	gravity well pulse
Yuri Gagarin	warp drives	thermal radar	left handed joystick grip	laser blue crest	solar wind flare
Kalpana Chawla	fusion sparks	thermal radar	right handed joystick grip	laser blue crest	solar wind flare
Helen Sharman	solar sails	glare shield	right handed joystick grip	laser blue crest	gravity well pulse
Buzz Aldrin	ion engines	thermal radar	left handed joystick grip	cosmic green crest	solar wind flare
Arthur Clarke	fusion sparks	thermal radar	left handed joystick grip	laser blue crest	solar wind flare
Mae Jemison	warp drives	thermal radar	left handed joystick grip	cosmic green crest	solar wind flare
Isaac Asimov	plasma flares	thermal radar	right handed joystick grip	cosmic green crest	solar wind flare

CLUE 1 Place value

The control deck computer locked up. We must analyze the digits of the security override code to find the value of the hundreds place.

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

T							T									T
700	200	40	900	400	900	800	40	1000	700	7000	8000	40	900	30	8000	700

									T					
400	900	40	30	40	300	400	600	60	90	20	600	700	40	70

What is the value of the 7 in 733? →

T

What is the value of the 6 in 161? →

A

What is the value of the 8 in 8,114? →

O

What is the value of the 4 in 947? →

E

What is the value of the 2 in 923? →

I

What is the value of the 7 in 7,289? →

D

What is the value of the 6 in 9,692? →

L

What is the value of the 3 in 8,319? →

B

What is the value of the 7 in 676? →

R

What is the value of the 9 in 5,934? →

S

What is the value of the 3 in 936? →

N

What is the value of the 2 in 277? →

H

What is the value of the 4 in 457? →

U

What is the value of the 8 in 7,823? →

P

What is the value of the 9 in 793? →

F

What is the value of the 1 in 1,288? →

C

Scratch space:

CLUE 2 Addition

We tallied the leaked fuel canisters scattered across the launching platform to calculate the total fuel lost during the getaway.

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

L																		L	
233	662	909	628	283	351	283	310	802	819	628	283	351	462	628	839	351	233	474	

963	213	488	909	819	462	571	662	839	802	839	819	462	628	474

$133 + 100 = \square \rightarrow \boxed{\text{L}}$

$124 + 186 = \square \rightarrow \boxed{\text{K}}$

$119 + 164 = \square \rightarrow \boxed{\text{C}}$

$227 + 261 = \square \rightarrow \boxed{\text{D}}$

$242 + 329 = \square \rightarrow \boxed{\text{G}}$

$180 + 171 = \square \rightarrow \boxed{\text{O}}$

$121 + 92 = \square \rightarrow \boxed{\text{A}}$

$490 + 419 = \square \rightarrow \boxed{\text{F}}$

$284 + 190 = \square \rightarrow \boxed{\text{S}}$

$216 + 412 = \square \rightarrow \boxed{\text{T}}$

$368 + 451 = \square \rightarrow \boxed{\text{I}}$

$452 + 511 = \square \rightarrow \boxed{\text{H}}$

$534 + 305 = \square \rightarrow \boxed{\text{R}}$

$469 + 333 = \square \rightarrow \boxed{\text{P}}$

$143 + 319 = \square \rightarrow \boxed{\text{N}}$

$255 + 407 = \square \rightarrow \boxed{\text{E}}$

Scratch space:

CLUE 3 Subtraction

The cargo bay scale shows a drop in weight. Subtract the weight of the remaining meteor rocks to see how many kilograms are missing.

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

S														S		S			
854	706	649	143	448	544	851	861	774	335	649	143	448	533	854	261	854	228	533	155

		S													
448	533	854	533	228	228	713	533	851	448	533	861	607	851	861	533

$857 - 3 = \square \rightarrow$ S	$600 - 265 = \square \rightarrow$ F	$220 - 77 = \square \rightarrow$ A
$884 - 235 = \square \rightarrow$ L	$550 - 395 = \square \rightarrow$ M	$490 - 229 = \square \rightarrow$ Y
$906 - 362 = \square \rightarrow$ W	$871 - 158 = \square \rightarrow$ H	$842 - 394 = \square \rightarrow$ R
$1214 - 353 = \square \rightarrow$ N	$628 - 400 = \square \rightarrow$ T	$881 - 107 = \square \rightarrow$ D
$994 - 387 = \square \rightarrow$ G	$771 - 65 = \square \rightarrow$ O	$765 - 232 = \square \rightarrow$ E
$1066 - 215 = \square \rightarrow$ I		

Scratch space:

CLUE 4 Rounding

The ship tracking radar is fuzzy and only displays rounded numbers. Round the distance to the nearest ten to pinpoint the warp trail.

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

G						G					G				
50	600	40	80	60	6000	50	30	600	90	5000	50	600	4000	400	400
400	20	3000	4000	7000	5000	900	2000	8000	5000	8000	4000	2000	20	8000	

Round 49 to the nearest ten → **G**

Round 8,095 to the nearest thousand → **H**

Round 78 to the nearest ten → **W**

Round 2,532 to the nearest thousand → **R**

Round 60 to the nearest ten → **I**

Round 887 to the nearest hundred → **D**

Round 87 to the nearest ten → **U**

Round 587 to the nearest hundred → **L**

Round 4,436 to the nearest thousand → **A**

Round 356 to the nearest hundred → **S**

Round 5,688 to the nearest thousand → **N**

Round 44 to the nearest ten → **O**

Round 6,787 to the nearest thousand → **P**

Round 31 to the nearest ten → **B**

Round 16 to the nearest ten → **C**

Round 1,507 to the nearest thousand → **T**

Round 4,641 to the nearest thousand → **E**

Scratch space:

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

We found a broken solar array. Calculate how many solar panels are missing from the power grid to restore full sensor capability.

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:

$7 + \underline{\quad} = 10$

$5 + \underline{\quad} = 17$

$10 + \underline{\quad} = 12$

$5 + \underline{\quad} = 15$

$1 + \underline{\quad} = 9$

$7 + \underline{\quad} = 11$

$4 + \underline{\quad} = 10$

$1 + \underline{\quad} = 12$

$7 + \underline{\quad} = 12$

$10 + \underline{\quad} = 17$

$8 + \underline{\quad} = 17$

Step 2 - cross out the sentence with each answer:

1. The villain overloads the power grid, then hides behind the red moon.
2. The villain disables the docking bay lock, then cloaks in the orbital shadow.
3. The villain scrambles the radar signal, then hides behind the red moon.
4. The villain hacks the main terminal, then slingshots around the sun.
5. The villain vents the airlock pressure, then hides behind the red moon.
6. The villain hacks the main terminal, then cloaks in the orbital shadow.
7. The villain hacks the main terminal, then zooms past the asteroid belt.
8. The villain overloads the power grid, then zooms past the asteroid belt.
9. The villain disables the docking bay lock, then escapes into the dark nebula.
10. The villain disables the docking bay lock, then hides behind the red moon.
11. The villain scrambles the radar signal, then escapes into the dark nebula.
12. The villain vents the airlock pressure, then slingshots around the sun.

Answer Key

The Mars Outpost Heist

Culprit: Arthur Clarke

fusion sparks · thermal radar · left handed joystick grip · laser blue crest · solar wind flare

Trail: Start 21 → Clue 1 18 → Clue 2 12 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Place value): "THE SUSPECT DOES NOT USE NEBULA FILTER"

What is the value of the 7 in 733? = 700 (T) · What is the value of the 6 in 161? = 60 (A) · What is the value of the 8 in 8,114? = 8000 (O) · What is the value of the 4 in 947? = 40 (E) · What is the value of the 2 in 923? = 20 (I) · What is the value of the 7 in 7,289? = 7000 (D) · What is the value of the 6 in 9,692? = 600 (L) · What is the value of the 3 in 8,319? = 300 (B) · What is the value of the 7 in 676? = 70 (R) · What is the value of the 9 in 5,934? = 900 (S) · What is the value of the 3 in 936? = 30 (N) · What is the value of the 2 in 277? = 200 (H) · What is the value of the 4 in 457? = 400 (U) · What is the value of the 8 in 7,823? = 800 (P) · What is the value of the 9 in 793? = 90 (F) · What is the value of the 1 in 1,288? = 1000 (C)

Clue 2 (Addition): "LEFT COCKPIT CONTROLS HAD FINGERPRINTS"

133 + 100 = 233 (L) · 124 + 186 = 310 (K) · 119 + 164 = 283 (C) · 227 + 261 = 488 (D) · 242 + 329 = 571 (G) · 180 + 171 = 351 (O) · 121 + 92 = 213 (A) · 490 + 419 = 909 (F) · 284 + 190 = 474 (S) · 216 + 412 = 628 (T) · 368 + 451 = 819 (I) · 452 + 511 = 963 (H) · 534 + 305 = 839 (R) · 469 + 333 = 802 (P) · 143 + 319 = 462 (N) · 255 + 407 = 662 (E)

Clue 3 (Subtraction): "SOLAR WIND FLARE SYSTEM RESET THEIR ENGINE"

857 - 3 = 854 (S) · 600 - 265 = 335 (F) · 220 - 77 = 143 (A) · 884 - 235 = 649 (L) · 550 - 395 = 155 (M) · 490 - 229 = 261 (Y) · 906 - 362 = 544 (W) · 871 - 158 = 713 (H) · 842 - 394 = 448 (R) · 1214 - 353 = 861 (N) · 628 - 400 = 228 (T) · 881 - 107 = 774 (D) · 994 - 387 = 607 (G) · 771 - 65 = 706 (O) · 765 - 232 = 533 (E) · 1066 - 215 = 851 (I)

Clue 4 (Rounding): "GLOWING BLUE GLASS SCRAPED THE HATCH"

Round 49 to the nearest ten = 50 (G) · Round 8,095 to the nearest thousand = 8000 (H) · Round 78 to the nearest ten = 80 (W) · Round 2,532 to the nearest thousand = 3000 (R) · Round 60 to the nearest ten = 60 (I) · Round 887 to the nearest hundred = 900 (D) · Round 87 to the nearest ten = 90 (U) · Round 587 to the nearest hundred = 600 (L) · Round 4,436 to the nearest thousand = 4000 (A) · Round 356 to the nearest hundred = 400 (S) · Round 5,688 to the nearest thousand = 6000 (N) · Round 44 to the nearest ten = 40 (O) · Round 6,787 to the nearest thousand = 7000 (P) · Round 31 to the nearest ten = 30 (B) · Round 16 to the nearest ten = 20 (C) · Round 1,507 to the nearest thousand = 2000 (T) · Round 4,641 to the nearest thousand = 5000 (E)

Clue 5 (Missing addends): surviving statement is box 1 → Arthur Clarke

7 + ___ = 10 = 3 · 5 + ___ = 17 = 12 · 10 + ___ = 12 = 2 · 5 + ___ = 15 = 10 · 1 + ___ = 9 = 8 · 7 + ___ = 11 = 4 · 4 + ___ = 10 = 6 · 1 + ___ = 12 = 11 · 7 + ___ = 12 = 5 · 10 + ___ = 17 = 7 · 8 + ___ = 17 = 9