



The Dinosaur Vault Heist

Grade 10 math · Addition, Subtraction, Fractions of a number, Word problems, Missing addends · Reading level grades 7-9

Detective: _____ Date: _____

A rare, intact obsidian Velociraptor skull has vanished from the high-security vault at Raptor Valley Research Outpost. The culprit left behind a trail of prehistoric chaos and cloned dinosaur tracks.

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 paleontologist is _____

Possible suspects

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

NAME	CLONED COMPANION DINO	STOLEN FIELD GEAR	ACCESSORY CHOICE	SAFETY HELMET COLOR	FEARSOME DISTRACTION
Xu Xing	baby triceratops	fossil extraction drill	clear safety goggles	matte black helmet	strong herbal repellant
Luis Alvarez	pygmy ankylosaurus	amber plasma torch	tinted visor	bright yellow helmet	loud airhorn blast
Paul Sereno	trained pterodactyl	amber plasma torch	clear safety goggles	matte black helmet	strong herbal repellant
Edward Cope	pygmy ankylosaurus	cryo specimen jar	clear safety goggles	matte black helmet	strong herbal repellant
Peter Dodson	tame microraptor	seismic ground scanner	tinted visor	matte black helmet	strong herbal repellant
Robert Bakker	baby triceratops	seismic ground scanner	clear safety goggles	bright yellow helmet	loud airhorn blast
Anesu Karera	trained pterodactyl	amber plasma torch	clear safety goggles	bright yellow helmet	loud airhorn blast
John Ostrom	baby triceratops	carbon dating laser	tinted visor	bright yellow helmet	shining ultraviolet light
Lawrence Lambe	baby triceratops	seismic ground scanner	tinted visor	matte black helmet	loud airhorn blast
Karen Chin	tame microraptor	carbon dating laser	clear safety goggles	bright yellow helmet	strong herbal repellant
Philip Currie	tame microraptor	fossil extraction drill	clear safety goggles	neon orange helmet	shining ultraviolet light
Patricia Vickers	t-rex hatchling	carbon dating laser	tinted visor	matte black helmet	shining ultraviolet light
Dong Zhiming	baby triceratops	cryo specimen jar	tinted visor	bright yellow helmet	shining ultraviolet light
Roy Andrews	tame microraptor	seismic ground scanner	clear safety goggles	bright yellow helmet	shining ultraviolet light
Mary Anning	tame microraptor	amber plasma torch	tinted visor	matte black helmet	loud airhorn blast
Susan Hendrickx	pygmy ankylosaurus	carbon dating laser	tinted visor	matte black helmet	shining ultraviolet light
Charles Sternberg	t-rex hatchling	cryo specimen jar	tinted visor	neon orange helmet	loud airhorn blast
Thomas Holtz	t-rex hatchling	seismic ground scanner	clear safety goggles	matte black helmet	strong herbal repellant
Jack Horner	tame microraptor	cryo specimen jar	clear safety goggles	bright yellow helmet	loud airhorn blast
Steve Brusatte	tame microraptor	cryo specimen jar	clear safety goggles	matte black helmet	strong herbal repellant
Othniel Marsh	pygmy ankylosaurus	fossil extraction drill	clear safety goggles	matte black helmet	shining ultraviolet light

CLUE 1 Addition

The security team added up the count of disturbed raptor nests around the compound to map the thief's entry path.

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

T										T						T		
7423	2970	2269	2523	9526	2439	8492	8614	4234	7423	2439	4775	2523	3901	9810	7423	2970	2269	

											T				
4775	5424	9221	2269	8614	8492	2439	4775	9810	5424	4775	7423	2363	8614	2523	2970

$4182 + 3241 = \square \rightarrow \text{T}$	$1694 + 829 = \square \rightarrow \text{C}$	$4999 + 3493 = \square \rightarrow \text{P}$
$2504 + 1730 = \square \rightarrow \text{I}$	$1769 + 3655 = \square \rightarrow \text{M}$	$3457 + 5764 = \square \rightarrow \text{B}$
$5129 + 4397 = \square \rightarrow \text{U}$	$4215 + 5595 = \square \rightarrow \text{S}$	$3707 + 4907 = \square \rightarrow \text{R}$
$1236 + 1033 = \square \rightarrow \text{E}$	$1411 + 1028 = \square \rightarrow \text{L}$	$1540 + 823 = \square \rightarrow \text{O}$
$2426 + 2349 = \square \rightarrow \text{A}$	$1188 + 1782 = \square \rightarrow \text{H}$	$1402 + 2499 = \square \rightarrow \text{K}$

Scratch space:

CLUE 2 Subtraction

To find where the rogue agent hid, we subtracted the weight of the recovered fossils from the total weight of the stolen shipment.

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

T																			
7089	1608	4839	4118	3686	4118	5838	4839	2562	7089	7549	3844	3056	4839	2562	7419	4839	2245	3056	
4118	2245	1360	4839	7089	3316	1557	3844	1557	1557	7419	4839	4118							

$$7649 - 560 = \square \rightarrow \boxed{\text{T}}$$

$$4913 - 795 = \square \rightarrow \boxed{\text{S}}$$

$$2722 - 160 = \square \rightarrow \boxed{\text{C}}$$

$$9569 - 4730 = \square \rightarrow \boxed{\text{E}}$$

$$9994 - 4156 = \square \rightarrow \boxed{\text{P}}$$

$$2895 - 1535 = \square \rightarrow \boxed{\text{F}}$$

$$5501 - 3944 = \square \rightarrow \boxed{\text{G}}$$

$$5144 - 3536 = \square \rightarrow \boxed{\text{H}}$$

$$6100 - 2414 = \square \rightarrow \boxed{\text{U}}$$

$$8136 - 717 = \square \rightarrow \boxed{\text{L}}$$

$$10673 - 3124 = \square \rightarrow \boxed{\text{W}}$$

$$6746 - 3690 = \square \rightarrow \boxed{\text{R}}$$

$$4906 - 1062 = \square \rightarrow \boxed{\text{O}}$$

$$4268 - 2023 = \square \rightarrow \boxed{\text{A}}$$

$$5790 - 2474 = \square \rightarrow \boxed{\text{Y}}$$

Scratch space:

Fractions of a number

The lab technician analyzed a fraction of the soil samples gathered from the footprint left in the fossil preparation room.

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

A 2x15 grid of boxes. The top row contains the following sequence: 'T', empty, empty, 'T', empty, empty, empty, empty, 'T', empty, empty, empty, empty, 'T', empty, empty, empty, empty. The bottom row contains: empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, empty, 'T'. Below each box is a number. The top row numbers are: 36, 37, 9, 36, 35, 49, 40, 9, 36, 30, 12, 9, 60, 48, 36, 49, 26, 39, 40. The bottom row numbers are: 37, 9, 49, 10, 35, 12, 49, 9, 14, 9, 12, 12, 35, 39, 36.

4/6 of 54 = → **T**

6/10 of 65 = → **N**

$\frac{3}{4}$ of 40 = $\rightarrow$ **F**

2/4 of 74 = → **H**

$6/8$ of $80 = \boxed{} \rightarrow \boxed{\text{D}}$

$3/5$ of 15 = $\rightarrow$ **E**

$$2/4 \text{ of } 28 = \boxed{} \rightarrow \boxed{\text{P}}$$

$$\frac{2}{3} \text{ of } 18 = \boxed{} \rightarrow \boxed{\text{L}}$$

$$\frac{1}{4} \text{ of } 140 = \boxed{} \rightarrow \mathbf{A}$$

$$2/8 \text{ of } 196 = \boxed{} \rightarrow \boxed{\text{R}}$$

8/10 of 50 = → **G**

5/10 of 20 = → **B**

$3/5$ of 80 = $\rightarrow$ **S**

$\frac{1}{3}$ of 78 = $\rightarrow$

Scratch space:

CLUE 4 Word problems

By solving the puzzle of the dinosaur feeding schedules, our trackers calculated the exact hour the perimeter fence was breached.

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

A strand of

M										K	H			M		
16	101	36	36	52	64	59	101	88			52	59	16	52	36	

 hair turned up at the scene.

Ranger Davis lined up 4 rows of 4 amber chunks. How many amber chunks in all? → **M**

Ranger Davis found 21 amber chunks yesterday and 31 more today. How many amber chunks in all? → **E**

There were 92 plaster casts. 28 were used up. How many plaster casts are left? → **B**

There were 61 amber chunks. 25 were used up. How many amber chunks are left? → **T**

There were 117 amber chunks. 29 were used up. How many amber chunks are left? → **C**

Ranger Davis found 15 plaster casts yesterday and 86 more today. How many plaster casts in all? → **A**

There were 77 plaster casts. 18 were used up. How many plaster casts are left? → **L**

Scratch space:

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

The team realized that several supply crates were unaccounted for, leaving a gap in the camp inventory we had to calculate.

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:

$1 + \underline{\quad} = 7$

$8 + \underline{\quad} = 18$

$30 + \underline{\quad} = 34$

$31 + \underline{\quad} = 33$

$29 + \underline{\quad} = 40$

$9 + \underline{\quad} = 17$

$20 + \underline{\quad} = 29$

$14 + \underline{\quad} = 15$

$37 + \underline{\quad} = 49$

$37 + \underline{\quad} = 44$

$23 + \underline{\quad} = 26$

Step 2 - cross out the sentence with each answer:

1. The villain deployed a pygmy ankylosaurus, then then used a seismic ground scanner to escape.
2. The villain sent in a baby triceratops, then then melted the vault lock with an amber plasma torch.
3. The villain commanded a tame microraptor, then then used a seismic ground scanner to escape.
4. The villain unleashed a t-rex hatchling, then then used a seismic ground scanner to escape.
5. The villain commanded a tame microraptor, then then stored the fossil in a cryo specimen jar.
6. The villain sent in a baby triceratops, then then hotwired a fossil extraction drill.
7. The villain sent in a baby triceratops, then then stored the fossil in a cryo specimen jar.
8. The villain deployed a pygmy ankylosaurus, then then melted the vault lock with an amber plasma torch.
9. The villain sent in a baby triceratops, then then used a seismic ground scanner to escape.
10. The villain deployed a pygmy ankylosaurus, then then stored the fossil in a cryo specimen jar.
11. The villain directed a trained pterodactyl, then then melted the vault lock with an amber plasma torch.
12. The villain unleashed a t-rex hatchling, then then hotwired a fossil extraction drill.

Answer Key

The Dinosaur Vault Heist

Culprit: Steve Brusatte

tame microraptor · cryo specimen jar · clear safety goggles · matte black helmet · strong herbal repellent

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

Clue 1 (Addition): "THE CULPRIT LACKS THE AMBER PLASMA TORCH"

$4182 + 3241 = 7423$ (T) · $1694 + 829 = 2523$ (C) · $4999 + 3493 = 8492$ (P) · $2504 + 1730 = 4234$ (I) · $1769 + 3655 = 5424$ (M) · $3457 + 5764 = 9221$ (B) · $5129 + 4397 = 9526$ (U) · $4215 + 5595 = 9810$ (S) · $3707 + 4907 = 8614$ (R) · $1236 + 1033 = 2269$ (E) · $1411 + 1028 = 2439$ (L) · $1540 + 823 = 2363$ (O) · $2426 + 2349 = 4775$ (A) · $1188 + 1782 = 2970$ (H) · $1402 + 2499 = 3901$ (K)

Clue 2 (Subtraction): "THE SUSPECT WORE CLEAR SAFETY GOGGLES"

$7649 - 560 = 7089$ (T) · $4913 - 795 = 4118$ (S) · $2722 - 160 = 2562$ (C) · $9569 - 4730 = 4839$ (E) · $9994 - 4156 = 5838$ (P) · $2895 - 1535 = 1360$ (F) · $5501 - 3944 = 1557$ (G) · $5144 - 3536 = 1608$ (H) · $6100 - 2414 = 3686$ (U) · $8136 - 717 = 7419$ (L) · $10673 - 3124 = 7549$ (W) · $6746 - 3690 = 3056$ (R) · $4906 - 1062 = 3844$ (O) · $4268 - 2023 = 2245$ (A) · $5790 - 2474 = 3316$ (Y)

Clue 3 (Fractions of a number): "THE TARGET FLED STRONG HERBAL REPELLANT"

$4/6$ of 54 = 36 (T) · $6/10$ of 65 = 39 (N) · $3/4$ of 40 = 30 (F) · $2/4$ of 74 = 37 (H) · $6/8$ of 80 = 60 (D) · $3/5$ of 15 = 9 (E) · $2/4$ of 28 = 14 (P) · $2/3$ of 18 = 12 (L) · $1/4$ of 140 = 35 (A) · $2/8$ of 196 = 49 (R) · $8/10$ of 50 = 40 (G) · $5/10$ of 20 = 10 (B) · $3/5$ of 80 = 48 (S) · $1/3$ of 78 = 26 (O)

Clue 4 (Word problems): "MATTE BLACK HELMET"

Ranger Davis lined up 4 rows of 4 amber chunks. How many amber chunks in all? = 16 (M) · Ranger Davis found 21 amber chunks yesterday and 31 more today. How many amber chunks in all? = 52 (E) · There were 92 plaster casts. 28 were used up. How many plaster casts are left? = 64 (B) · There were 61 amber chunks. 25 were used up. How many amber chunks are left? = 36 (T) · There were 117 amber chunks. 29 were used up. How many amber chunks are left? = 88 (C) · Ranger Davis found 15 plaster casts yesterday and 86 more today. How many plaster casts in all? = 101 (A) · There were 77 plaster casts. 18 were used up. How many plaster casts are left? = 59 (L)

Clue 5 (Missing addends): surviving statement is box 5 → Steve Brusatte

$1 + \underline{\quad} = 7 = 6$ · $8 + \underline{\quad} = 18 = 10$ · $30 + \underline{\quad} = 34 = 4$ · $31 + \underline{\quad} = 33 = 2$ · $29 + \underline{\quad} = 40 = 11$ · $9 + \underline{\quad} = 17 = 8$ · $20 + \underline{\quad} = 29 = 9$ · $14 + \underline{\quad} = 15 = 1$ · $37 + \underline{\quad} = 49 = 12$ · $37 + \underline{\quad} = 44 = 7$ · $23 + \underline{\quad} = 26 = 3$