



The Great Dog Park Caper

Grade 7 math · Integers, Percentages, Order of operations, Exponents, Two-step equations · Reading level grades 1-2

Detective: _____ Date: _____

Oh no! Someone took the grand prize treats from the park office. A dog left paw prints behind! We must find out which pup did it. Let us look for clues.

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 treat bandit is _____

Possible suspects

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

NAME	FAVORITE TRICK	PREFERRED TOY	LEASH SIDE	FUR STYLE	BEST DISTRACTION
Bear	paw shake	tennis ball	right side	curly fur	bubble machine
Rocky	paw shake	tennis ball	left side	fluffy fur	bubble machine
Milo	paw shake	tennis ball	right side	smooth fur	peanut butter
Lucy	roll over	rubber bone	right side	smooth fur	smelly cheese
Luna	fetch	rubber bone	left side	smooth fur	smelly cheese
Stella	loud bark	rubber duck	left side	fluffy fur	peanut butter
Penny	loud bark	rubber duck	right side	curly fur	peanut butter
Rosie	loud bark	rope toy	left side	fluffy fur	bubble machine
Coco	roll over	tennis ball	right side	curly fur	peanut butter
Buddy	roll over	rubber duck	right side	curly fur	peanut butter
Max	paw shake	rubber bone	left side	fluffy fur	bubble machine
Buster	high five	rope toy	right side	curly fur	smelly cheese
Cooper	paw shake	rubber bone	left side	curly fur	peanut butter
Daisy	roll over	plush bear	left side	fluffy fur	peanut butter
Bailey	high five	tennis ball	right side	fluffy fur	bubble machine
Ruby	high five	tennis ball	right side	smooth fur	smelly cheese
Charlie	roll over	plush bear	right side	curly fur	peanut butter
Jax	paw shake	plush bear	right side	curly fur	peanut butter
Bella	roll over	rubber duck	left side	fluffy fur	smelly cheese
Lola	fetch	rubber duck	right side	smooth fur	smelly cheese
Sophie	fetch	plush bear	right side	curly fur	peanut butter

CLUE 1 Integers

The dog park keeps track of points. Some dogs lose points for digging up dirt. Some dogs win points for sitting. Look at the scorecard to find the start.

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

T									T										T
6	7	20	28	26	23	10	18	6	10	15	20	13	23	15	6				
				T															
21	18	3	20	6	7	20	2	16	28	28	20	2	10	16	17	3			

$(-8) + 14 = \square \rightarrow$ T	$(-3) + 16 = \square \rightarrow$ S	$(-8) + 34 = \square \rightarrow$ A
$(-13) + 41 = \square \rightarrow$ B	$(-3) + 20 = \square \rightarrow$ C	$(-8) + 11 = \square \rightarrow$ K
$(-9) + 29 = \square \rightarrow$ E	$(-7) + 9 = \square \rightarrow$ R	$(-7) + 30 = \square \rightarrow$ N
$18 - (-3) = \square \rightarrow$ L	$2 - (-13) = \square \rightarrow$ O	$(-8) + 18 = \square \rightarrow$ D
$(-8) + 15 = \square \rightarrow$ H	$10 - (-8) = \square \rightarrow$ I	$(-13) + 29 = \square \rightarrow$ U

Scratch space:

CLUE 2

The pet shop has a big sale today. Some dog treats are ninety percent off. Some toys are ten percent off. We must find the best deal.

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

21 49 39 24 44 24 42 7 9 31 25 38 1 21 49 39

19 57 11 49 21 25 57 23 39

10% of 210 = $\rightarrow$ **T**

20% of 125 = $\rightarrow$ **S**

20% of 285 = $\rightarrow$

50% of 48 = $\rightarrow$ **P**

50% of 2 = $\rightarrow$ **N**

5% of 840 = → **W**

60% of 15 = $\rightarrow$ **L**

5% of 140 = $\rightarrow$ **A**

25% of 92 = $\rightarrow$ **D**

50% of 38 = → **R**

20% of 155 = → **K**

5% of 760 = $\rightarrow$

10% of 390 = → **E**

25% of 176 = $\rightarrow$ **U**

50% of 22 = $\rightarrow$ **G**

20% of 245 = $\rightarrow$ **H**

Scratch space:

Order of operations

The dog groomer has boxes of shampoo. Some boxes have three bottles. Some have five bottles. We must count them in the right order.

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

Two rows of number boxes. The first row has 16 boxes with the following values: 81, 120, 88, 78, 74, 78, 111, 45, 38, 38, 80, 81, 65, 88, 12, 97, 12, 81. The second row has 10 boxes with the following values: 78, 88, 45, 38, 74, 81, 108, 74, 81, 81, 88, 65. In the first row, the boxes containing 81 at the 11th and 12th positions are shaded orange and contain the letter 'T'. In the second row, the boxes containing 81 at the 6th, 9th, and 10th positions are shaded orange and contain the letter 'T'.

$$12 \times 8 - 15 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$10 \times 10 - 12 = \boxed{} \rightarrow \boxed{\text{E}}$$

$$8 + 8 \times 9 = \boxed{} \rightarrow \boxed{0}$$

$$10 \times 4 - 2 = \boxed{} \rightarrow \boxed{\text{N}}$$

$$60 + 2 \times 9 = \boxed{} \rightarrow \boxed{\text{P}}$$

$$8 \times 11 - 23 = \boxed{} \rightarrow \boxed{\text{R}}$$

$$11 \times 8 - 14 = \boxed{} \rightarrow \boxed{\text{U}}$$

$$12 \times 11 - 24 = \boxed{} \rightarrow \boxed{\mathbf{B}}$$

$$62 + 5 \times 7 = \boxed{} \rightarrow \boxed{}$$

$$6 + 3 \times 2 = \boxed{} \rightarrow \boxed{\mathbf{S}}$$

$$11 \times 11 - 1 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$27 + 3 \times 6 = \boxed{} \rightarrow \boxed{\mathbf{A}}$$

$$12 \times 10^{-9} = \boxed{} \rightarrow \boxed{\text{C}}$$

Scratch space:

CLUE 4 Exponents

The backyard has square pens for dogs to play. The side of one pen is five yards long. The square of that number tells us the area.

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

W														
343	121	216	225	400	9	256	169	400	8	36	32	216	400	8
16	144	121	169	361	8	4	121	16						

$7^3 = \square \rightarrow \mathbf{W}$	$12^2 = \square \rightarrow \mathbf{H}$	$2^3 = \square \rightarrow \mathbf{R}$	$15^2 = \square \rightarrow \mathbf{O}$
$13^2 = \square \rightarrow \mathbf{C}$	$4^4 = \square \rightarrow \mathbf{D}$	$11^2 = \square \rightarrow \mathbf{E}$	$6^2 = \square \rightarrow \mathbf{L}$
$3^2 = \square \rightarrow \mathbf{N}$	$2^4 = \square \rightarrow \mathbf{T}$	$2^5 = \square \rightarrow \mathbf{Y}$	$2^2 = \square \rightarrow \mathbf{P}$
$6^3 = \square \rightarrow \mathbf{F}$	$19^2 = \square \rightarrow \mathbf{A}$	$20^2 = \square \rightarrow \mathbf{U}$	

Scratch space:

CLUE 5**Two-step equations - the last clue**

A bag of dog food costs ten dollars. The total bill for the food and some toys is thirty dollars. We need to solve for the cost of one toy.

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:

$6x + 9 = 51, x = \boxed{}$

$5x + 7 = 27, x = \boxed{}$

$2x + 3 = 21, x = \boxed{}$

$2x + 2 = 8, x = \boxed{}$

$2x + 12 = 22, x = \boxed{}$

$2x + 10 = 34, x = \boxed{}$

$4x + 11 = 55, x = \boxed{}$

$6x + 11 = 59, x = \boxed{}$

$4x + 8 = 32, x = \boxed{}$

$6x + 7 = 13, x = \boxed{}$

$3x + 12 = 42, x = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain performs a speedy fetch, then chews a tennis ball.
2. The villain offers a polite shake, then hugs a plush bear.
3. The villain gives a very loud bark, then squeals a rubber duck.
4. The villain does a perfect roll over, then hugs a plush bear.
5. The villain does a perfect roll over, then squeaks a rubber bone.
6. The villain does a perfect roll over, then squeals a rubber duck.
7. The villain performs a speedy fetch, then hugs a plush bear.
8. The villain offers a polite shake, then tugs a rope toy.
9. The villain does a perfect roll over, then chews a tennis ball.
10. The villain does a high five, then squeals a rubber duck.
11. The villain does a high five, then tugs a rope toy.
12. The villain does a high five, then chews a tennis ball.

Answer Key

The Great Dog Park Caper

Culprit: Jax

paw shake · plush bear · right side · curly fur · peanut butter

Trail: Start 21 → Clue 1 16 → Clue 2 10 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Integers): "THE BANDIT DOES NOT LIKE THE RUBBER DUCK"

$(-8) + 14 = 6$ (T) · $(-3) + 16 = 13$ (S) · $(-8) + 34 = 26$ (A) · $(-13) + 41 = 28$ (B) · $(-3) + 20 = 17$ (C) · $(-8) + 11 = 3$ (K) · $(-9) + 29 = 20$ (E) · $(-7) + 9 = 2$ (R) · $(-7) + 30 = 23$ (N) · $18 - (-3) = 21$ (L) · $2 - (-13) = 15$ (O) · $(-8) + 18 = 10$ (D) · $(-8) + 15 = 7$ (H) · $10 - (-8) = 18$ (I) · $(-13) + 29 = 16$ (U)

Clue 2 (Percentages): "THE PUP WALKS ON THE RIGHT SIDE"

10% of 210 = 21 (T) · 20% of 125 = 25 (S) · 20% of 285 = 57 (I) · 50% of 48 = 24 (P) · 50% of 2 = 1 (N) · 5% of 840 = 42 (W) · 60% of 15 = 9 (L) · 5% of 140 = 7 (A) · 25% of 92 = 23 (D) · 50% of 38 = 19 (R) · 20% of 155 = 31 (K) · 5% of 760 = 38 (O) · 10% of 390 = 39 (E) · 25% of 176 = 44 (U) · 50% of 22 = 11 (G) · 20% of 245 = 49 (H)

Clue 3 (Order of operations): "THE PUP CAN NOT RESIST PEANUT BUTTER"

$12 \times 8 - 15 = 81$ (T) · $10 \times 10 - 12 = 88$ (E) · $8 + 8 \times 9 = 80$ (O) · $10 \times 4 - 2 = 38$ (N) · $60 + 2 \times 9 = 78$ (P) · $8 \times 11 - 23 = 65$ (R) · $11 \times 8 - 14 = 74$ (U) · $12 \times 11 - 24 = 108$ (B) · $62 + 5 \times 7 = 97$ (I) · $6 + 3 \times 2 = 12$ (S) · $11 \times 11 - 1 = 120$ (H) · $27 + 3 \times 6 = 45$ (A) · $12 \times 10 - 9 = 111$ (C)

Clue 4 (Exponents): "WE FOUND CURLY FUR ON THE CARPET"

$7^3 = 343$ (W) · $12^2 = 144$ (H) · $2^3 = 8$ (R) · $15^2 = 225$ (O) · $13^2 = 169$ (C) · $4^4 = 256$ (D) · $11^2 = 121$ (E) · $6^2 = 36$ (L) · $3^2 = 9$ (N) · $2^4 = 16$ (T) · $2^5 = 32$ (Y) · $2^2 = 4$ (P) · $6^3 = 216$ (F) · $19^2 = 361$ (A) · $20^2 = 400$ (U)

Clue 5 (Two-step equations): surviving statement is box 2 → Jax

$6x + 9 = 51, x = 7$ · $5x + 7 = 27, x = 4$ · $2x + 3 = 21, x = 9$ · $2x + 2 = 8, x = 3$ · $2x + 12 = 22, x = 5$ · $2x + 10 = 34, x = 12$ · $4x + 11 = 55, x = 11$ · $6x + 11 = 59, x = 8$ · $4x + 8 = 32, x = 6$ · $6x + 7 = 13, x = 1$ · $3x + 12 = 42, x = 10$