The Pyralis Dragon Egg Mystery

Grade 10 math · Pythagorean theorem, Square roots, Exponents, Order of operations · Reading level grades 7-9

Detective: _____ **Date:** _____

A glowing golden dragon egg has been stolen from the high nesting towers of Pyralis Academy! The thief left behind traces of dragon magic and mysterious clues. As the lead student detective, you must analyze the flight paths, scales, and riding gear to identify the culprit before the egg hatches.

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 dragon thief is _____

Possible suspects

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

NAME	SIGNATURE BREATH	DRAGON CLASS	GLOVE PREFERENCE	SADDLE CREST COLOR	DISTRACTION TOY
Valka Hofferson	Acid Spit	Boulder Class	Right Handed Glove	Obsidian Black Crest	Copper Whistle
Eret Son of Eret	Acid Spit	Boulder Class	Left Handed Glove	Ruby Red Crest	Copper Whistle
Daenerys Targaryen	Acid Spit	Stoker Class	Right Handed Glove	Ruby Red Crest	Copper Whistle
Zephyr Storm	Acid Spit	Mystery Class	Left Handed Glove	Ruby Red Crest	Squeaky Sheep Toy
Drake Burnwell	Magma Splash	Mystery Class	Right Handed Glove	Emerald Green Crest	Squeaky Sheep Toy
Rhaegar Targaryen	Magma Splash	Stoker Class	Right Handed Glove	Emerald Green Crest	Squeaky Sheep Toy
Claudia of Katolis	Acid Spit	Boulder Class	Right Handed Glove	Emerald Green Crest	Copper Whistle
Astrid Hofferson	Magma Splash	Boulder Class	Right Handed Glove	Emerald Green Crest	Squeaky Sheep Toy
Ember Ashwood	Acid Spit	Strike Class	Right Handed Glove	Emerald Green Crest	Copper Whistle
Aegon Targaryen	Frost Beam	Tracker Class	Right Handed Glove	Ruby Red Crest	Copper Whistle
Gobber Belch	Frost Beam	Tracker Class	Right Handed Glove	Emerald Green Crest	Copper Whistle
Cinder Skyshadow	Magma Splash	Stoker Class	Right Handed Glove	Emerald Green Crest	Copper Whistle
Kaelen Drake	Lightning Arc	Strike Class	Left Handed Glove	Obsidian Black Crest	Squeaky Sheep Toy
Eragon Shadeslayer	Magma Splash	Strike Class	Right Handed Glove	Emerald Green Crest	Squeaky Sheep Toy
Ezran of Katolis	Lightning Arc	Stoker Class	Right Handed Glove	Ruby Red Crest	Copper Whistle
Callum of Katolis	Magma Splash	Stoker Class	Left Handed Glove	Obsidian Black Crest	Glow Moss Ball
Soren of Katolis	Acid Spit	Stoker Class	Left Handed Glove	Emerald Green Crest	Copper Whistle
Ryker Grimborn	Lightning Arc	Strike Class	Left Handed Glove	Emerald Green Crest	Copper Whistle
Rayla of Xadia	Lightning Arc	Mystery Class	Left Handed Glove	Emerald Green Crest	Glow Moss Ball
Garrick Firestone	Acid Spit	Mystery Class	Left Handed Glove	Emerald Green Crest	Copper Whistle
Viserys Targaryen	Magma Splash	Mystery Class	Right Handed Glove	Emerald Green Crest	Copper Whistle

CLUE 1 Pythagorean theorem

> We map the diagonal path the thief took from the high roost to the gate using two perpendicular corridors.

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

T			T											T									
10	20	123	10	20	116	123	85	111	41	123	39	40	41	10	26	116	111	123					
	T																						
13	10	26	13	58	68	123	26	58	82	13	39	39	111	26	13	37	41	40					

legs 6 and 8, hypotenuse = ☐ → **T**

legs 12 and 35, hypotenuse = ☐ → **G**

legs 80 and 84, hypotenuse = ☐ → **I**

legs 32 and 60, hypotenuse = ☐ → **K**

legs 5 and 12, hypotenuse = ☐ → **A**

legs 10 and 24, hypotenuse = ☐ → **R**

legs 9 and 40, hypotenuse = ☐ → **O**

legs 15 and 36, hypotenuse = ☐ → **S**

legs 27 and 120, hypotenuse = ☐ → **E**

legs 24 and 32, hypotenuse = ☐ → **N**

legs 40 and 42, hypotenuse = ☐ → **C**

legs 12 and 16, hypotenuse = ☐ → **H**

legs 18 and 80, hypotenuse = ☐ → **L**

legs 36 and 105, hypotenuse = ☐ → **D**

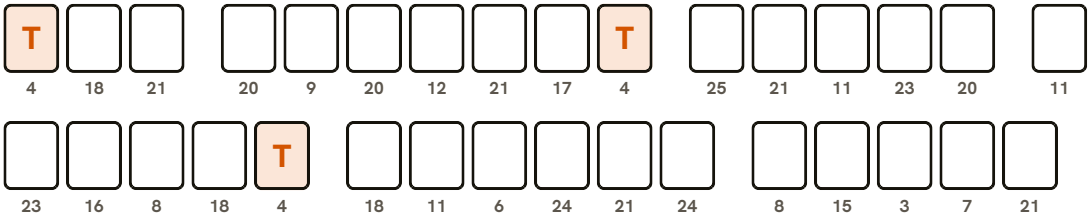
legs 40 and 75, hypotenuse = ☐ → **F**

Scratch space:

CLUE 2 Square roots

To find where the thief hid, we calculate the wall length of the square dragon pen using its total area.

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



sqrt(16) = ☐ → T

sqrt(64) = ☐ → G

sqrt(36) = ☐ → N

sqrt(400) = ☐ → S

sqrt(441) = ☐ → E

sqrt(144) = ☐ → P

sqrt(49) = ☐ → V

sqrt(121) = ☐ → A

sqrt(324) = ☐ → H

sqrt(289) = ☐ → C

sqrt(529) = ☐ → R

sqrt(576) = ☐ → D

sqrt(225) = ☐ → L

sqrt(625) = ☐ → W

sqrt(256) = ☐ → I

sqrt(9) = ☐ → O

sqrt(81) = ☐ → U

Scratch space:

CLUE 3 Exponents

> The thief used a cloaking spell that doubles in strength every minute, so we calculate its power at hour three.

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

A																								
169	243	121	125	125	216	289	8	16	4	144	441	625	216	144	441	121	125	144	441	16	4	144	100	216	169	144	441

13^2 = ☐ → A

4^2 = ☐ → H

11^2 = ☐ → O

21^2 = ☐ → T

5^4 = ☐ → L

5^3 = ☐ → P

2^3 = ☐ → W

17^2 = ☐ → R

10^2 = ☐ → B

6^3 = ☐ → E

2^2 = ☐ → I

12^2 = ☐ → S

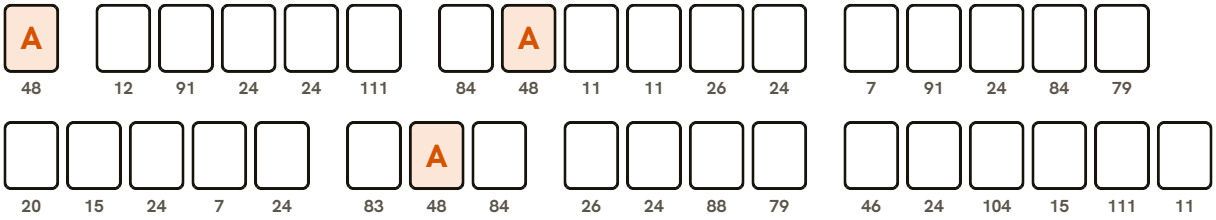
3^5 = ☐ → C

Scratch space:

CLUE 4 Order of operations

We calculate the weight of the messy food sacks left behind by solving a multi-step supply equation.

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



- 9 × 6 - 6 = ☐ → **A**
- 12 × 8 - 8 = ☐ → **F**
- 59 + 3 × 8 = ☐ → **W**
- 32 + 7 × 2 = ☐ → **B**
- 55 + 4 × 9 = ☐ → **R**
- 3 × 10 - 19 = ☐ → **D**
- 4 × 7 - 21 = ☐ → **C**
- 8 × 7 - 30 = ☐ → **L**
- 7 + 4 × 2 = ☐ → **I**
- 70 + 7 × 2 = ☐ → **S**
- 10 × 12 - 9 = ☐ → **N**
- 10 + 2 × 7 = ☐ → **E**
- 69 + 7 × 5 = ☐ → **H**
- 71 + 2 × 4 = ☐ → **T**
- 7 × 2 - 2 = ☐ → **G**
- 7 × 4 - 8 = ☐ → **P**

Scratch space:

CLUE 5 Square roots - the last clue

> A single square rune tile was dropped, and we find its side length by taking the root of its surface area.

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:

sqrt(100) = ☐ sqrt(9) = ☐ sqrt(144) = ☐ sqrt(25) = ☐ sqrt(121) = ☐

sqrt(64) = ☐ sqrt(1) = ☐ sqrt(36) = ☐ sqrt(16) = ☐ sqrt(49) = ☐

sqrt(81) = ☐

Step 2 - cross out the sentence with each answer:

1. The villain creates a pool of magma splash, then bolts into the clouds on a Strike Class dragon.
2. The villain creates a pool of magma splash, then vanishes on a strange Mystery Class dragon.
3. The villain creates a pool of magma splash, then escapes on a fiery Stoker Class beast.
4. The villain shatters the glass with a sonic roar, then bolts into the clouds on a Strike Class dragon.
5. The villain melts the lock with a burst of acid spit, then flies off on a tracking dragon.
6. The villain strikes the ground with a lightning arc, then escapes on a fiery Stoker Class beast.
7. The villain unleashes a freezing frost beam, then flies off on a tracking dragon.
8. The villain shatters the glass with a sonic roar, then flies off on a tracking dragon.
9. The villain strikes the ground with a lightning arc, then soars away on a heavy Boulder Class mount.
10. The villain melts the lock with a burst of acid spit, then bolts into the clouds on a Strike Class dragon.
11. The villain unleashes a freezing frost beam, then vanishes on a strange Mystery Class dragon.
12. The villain melts the lock with a burst of acid spit, then soars away on a heavy Boulder Class mount.

TEACHER / PARENT

Answer Key

The Pyralis Dragon Egg Mystery

Culprit: Viserys Targaryen

Magma Splash · Mystery Class · Right Handed Glove · Emerald Green Crest · Copper Whistle

Trail: Start 21 → Clue 1 19 → Clue 2 11 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Pythagorean theorem): "THE THIEF DOES NOT RIDE A TRACKER CLASS DRAGON"

legs 6 and 8, hypotenuse = 10 (T) · legs 12 and 35, hypotenuse = 37 (G) · legs 80 and 84, hypotenuse = 116 (I) · legs 32 and 60, hypotenuse = 68 (K) · legs 5 and 12, hypotenuse = 13 (A) · legs 10 and 24, hypotenuse = 26 (R) · legs 9 and 40, hypotenuse = 41 (O) · legs 15 and 36, hypotenuse = 39 (S) · legs 27 and 120, hypotenuse = 123 (E) · legs 24 and 32, hypotenuse = 40 (N) · legs 40 and 42, hypotenuse = 58 (C) · legs 12 and 16, hypotenuse = 20 (H) · legs 18 and 80, hypotenuse = 82 (L) · legs 36 and 105, hypotenuse = 111 (D) · legs 40 and 75, hypotenuse = 85 (F)

Clue 2 (Square roots): "THE SUSPECT WEARS A RIGHT HANDED GLOVE"

sqrt(16) = 4 (T) · sqrt(64) = 8 (G) · sqrt(36) = 6 (N) · sqrt(400) = 20 (S) · sqrt(441) = 21 (E) · sqrt(144) = 12 (P) · sqrt(49) = 7 (V) · sqrt(121) = 11 (A) · sqrt(324) = 18 (H) · sqrt(289) = 17 (C) · sqrt(529) = 23 (R) · sqrt(576) = 24 (D) · sqrt(225) = 15 (L) · sqrt(625) = 25 (W) · sqrt(256) = 16 (I) · sqrt(9) = 3 (O) · sqrt(81) = 9 (U)

Clue 3 (Exponents): "A COPPER WHISTLE STOPS THIS BEAST"

13^2 = 169 (A) · 4^2 = 16 (H) · 11^2 = 121 (O) · 21^2 = 441 (T) · 5^4 = 625 (L) · 5^3 = 125 (P) · 2^3 = 8 (W) · 17^2 = 289 (R) · 10^2 = 100 (B) · 6^3 = 216 (E) · 2^2 = 4 (I) · 12^2 = 144 (S) · 3^5 = 243 (C)

Clue 4 (Order of operations): "A GREEN SADDLE CREST PIECE WAS LEFT BEHIND"

9 × 6 - 6 = 48 (A) · 12 × 8 - 8 = 88 (F) · 59 + 3 × 8 = 83 (W) · 32 + 7 × 2 = 46 (B) · 55 + 4 × 9 = 91 (R) · 3 × 10 - 19 = 11 (D) · 4 × 7 - 21 = 7 (C) · 8 × 7 - 30 = 26 (L) · 7 + 4 × 2 = 15 (I) · 70 + 7 × 2 = 84 (S) · 10 × 12 - 9 = 111 (N) · 10 + 2 × 7 = 24 (E) · 69 + 7 × 5 = 104 (H) · 71 + 2 × 4 = 79 (T) · 7 × 2 - 2 = 12 (G) · 7 × 4 - 8 = 20 (P)

Clue 5 (Square roots): surviving statement is box 2 → Viserys Targaryen

sqrt(100) = 10 · sqrt(9) = 3 · sqrt(144) = 12 · sqrt(25) = 5 · sqrt(121) = 11 · sqrt(64) = 8 · sqrt(1) = 1 · sqrt(36) = 6 · sqrt(16) = 4 · sqrt(49) = 7 · sqrt(81) = 9