



# 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  |    |     |     |    |     |    |     |    |    |     |    |    |     |     |     |  |
| 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.

|   |    |    |    |   |    |    |    |    |   |    |    |    |    |    |    |  |
|---|----|----|----|---|----|----|----|----|---|----|----|----|----|----|----|--|
| T |    |    |    |   |    |    |    |    |   | T  |    |    |    |    |    |  |
| 4 | 18 | 21 | 20 | 9 | 20 | 12 | 21 | 17 | 4 | 25 | 21 | 11 | 23 | 20 | 11 |  |

|    |    |   |    |   |    |    |   |    |    |    |   |    |   |   |    |
|----|----|---|----|---|----|----|---|----|----|----|---|----|---|---|----|
|    |    |   |    | T |    |    |   |    |    |    |   |    |   |   |    |
| 23 | 16 | 8 | 18 | 4 | 18 | 11 | 6 | 24 | 21 | 24 | 8 | 15 | 3 | 7 | 21 |

$\sqrt{16} = \square \rightarrow \boxed{\text{T}}$

$\sqrt{64} = \square \rightarrow \boxed{\text{G}}$

$\sqrt{36} = \square \rightarrow \boxed{\text{N}}$

$\sqrt{400} = \square \rightarrow \boxed{\text{S}}$

$\sqrt{441} = \square \rightarrow \boxed{\text{E}}$

$\sqrt{144} = \square \rightarrow \boxed{\text{P}}$

$\sqrt{49} = \square \rightarrow \boxed{\text{V}}$

$\sqrt{121} = \square \rightarrow \boxed{\text{A}}$

$\sqrt{324} = \square \rightarrow \boxed{\text{H}}$

$\sqrt{289} = \square \rightarrow \boxed{\text{C}}$

$\sqrt{529} = \square \rightarrow \boxed{\text{R}}$

$\sqrt{576} = \square \rightarrow \boxed{\text{D}}$

$\sqrt{225} = \square \rightarrow \boxed{\text{L}}$

$\sqrt{625} = \square \rightarrow \boxed{\text{W}}$

$\sqrt{256} = \square \rightarrow \boxed{\text{I}}$

$\sqrt{9} = \square \rightarrow \boxed{\text{O}}$

$\sqrt{81} = \square \rightarrow \boxed{\text{U}}$

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 |

  

|     |    |   |     |     |     |     |     |     |
|-----|----|---|-----|-----|-----|-----|-----|-----|
|     |    |   |     |     |     | A   |     |     |
| 441 | 16 | 4 | 144 | 100 | 216 | 169 | 144 | 441 |

$13^2 = \square \rightarrow \boxed{A}$

$4^2 = \square \rightarrow \boxed{H}$

$11^2 = \square \rightarrow \boxed{O}$

$21^2 = \square \rightarrow \boxed{T}$

$5^4 = \square \rightarrow \boxed{L}$

$5^3 = \square \rightarrow \boxed{P}$

$2^3 = \square \rightarrow \boxed{W}$

$17^2 = \square \rightarrow \boxed{R}$

$10^2 = \square \rightarrow \boxed{B}$

$6^3 = \square \rightarrow \boxed{E}$

$2^2 = \square \rightarrow \boxed{I}$

$12^2 = \square \rightarrow \boxed{S}$

$3^5 = \square \rightarrow \boxed{C}$

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.

|          |    |    |    |    |     |    |          |    |    |    |    |    |    |     |    |     |    |
|----------|----|----|----|----|-----|----|----------|----|----|----|----|----|----|-----|----|-----|----|
| <b>A</b> |    |    |    |    |     |    | <b>A</b> |    |    |    |    |    |    |     |    |     |    |
| 48       | 12 | 91 | 24 | 24 | 111 | 84 | 48       | 11 | 11 | 26 | 24 | 7  | 91 | 24  | 84 | 79  |    |
|          |    |    |    |    |     |    | <b>A</b> |    |    |    |    |    |    |     |    |     |    |
| 20       | 15 | 24 | 7  | 24 | 83  | 48 | 84       | 26 | 24 | 88 | 79 | 46 | 24 | 104 | 15 | 111 | 11 |

$9 \times 6 - 6 = \square \rightarrow \text{A}$

$12 \times 8 - 8 = \square \rightarrow \text{F}$

$59 + 3 \times 8 = \square \rightarrow \text{W}$

$32 + 7 \times 2 = \square \rightarrow \text{B}$

$55 + 4 \times 9 = \square \rightarrow \text{R}$

$3 \times 10 - 19 = \square \rightarrow \text{D}$

$4 \times 7 - 21 = \square \rightarrow \text{C}$

$8 \times 7 - 30 = \square \rightarrow \text{L}$

$7 + 4 \times 2 = \square \rightarrow \text{I}$

$70 + 7 \times 2 = \square \rightarrow \text{S}$

$10 \times 12 - 9 = \square \rightarrow \text{N}$

$10 + 2 \times 7 = \square \rightarrow \text{E}$

$69 + 7 \times 5 = \square \rightarrow \text{H}$

$71 + 2 \times 4 = \square \rightarrow \text{T}$

$7 \times 2 - 2 = \square \rightarrow \text{G}$

$7 \times 4 - 8 = \square \rightarrow \text{P}$

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:**

$\text{sqrt}(100) = \boxed{\phantom{00}}$

$\text{sqrt}(9) = \boxed{\phantom{00}}$

$\text{sqrt}(144) = \boxed{\phantom{00}}$

$\text{sqrt}(25) = \boxed{\phantom{00}}$

$\text{sqrt}(121) = \boxed{\phantom{00}}$

$\text{sqrt}(64) = \boxed{\phantom{00}}$

$\text{sqrt}(1) = \boxed{\phantom{00}}$

$\text{sqrt}(36) = \boxed{\phantom{00}}$

$\text{sqrt}(16) = \boxed{\phantom{00}}$

$\text{sqrt}(49) = \boxed{\phantom{00}}$

$\text{sqrt}(81) = \boxed{\phantom{00}}$

**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.

# 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"

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

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

$\sqrt{100} = 10$  ·  $\sqrt{9} = 3$  ·  $\sqrt{144} = 12$  ·  $\sqrt{25} = 5$  ·  $\sqrt{121} = 11$  ·  $\sqrt{64} = 8$  ·  $\sqrt{1} = 1$  ·  $\sqrt{36} = 6$  ·  $\sqrt{16} = 4$  ·  $\sqrt{49} = 7$  ·  $\sqrt{81} = 9$