



The Great Crown Heist of McRyan Castle

Grade 10 math · Pythagorean theorem, Bar models, Word problems, Multi-step word problems, Division · Reading level grades 7-9

Detective: _____ Date: _____

King Roman II discovered that the royal crown was missing right before the grand feast. High Constable Donnie McRyan has locked down the castle gates to find out which noble stole it. Solve the math clues to uncover the culprit!

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 Crown Thief is _____

Possible suspects

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

NAME	MAIN WEAPON	BONUS ITEM	STANCE	CROWN STYLE	PHOBIA
Count Romanoff	Velvet Rope	Squirting Flower	Left Handed	Golden Helmet	Itchy Powder
Donnie Big Brain	Rubber Hammer	Smoke Bomb	Right Handed	Neon Wig	Itchy Powder
Baron Ryan von Donnie	Giant Spoon	Whoopee Cushion	Right Handed	Golden Helmet	Itchy Powder
Ryan the Reckless	Giant Spoon	Whoopee Cushion	Right Handed	Neon Wig	Tickle Feathers
Donnie Romanov	Giant Spoon	Whoopee Cushion	Right Handed	Spiky Tiara	Itchy Powder
Chef Ryan McSlice	Giant Spoon	Whoopee Cushion	Left Handed	Spiky Tiara	Tickle Feathers
King Roman II	Giant Spoon	Confetti Cannon	Right Handed	Spiky Tiara	Loud Whistles
Donnie Roman-Ryan	Rubber Hammer	Confetti Cannon	Left Handed	Neon Wig	Tickle Feathers
Duke Donnie Dynamite	Velvet Rope	Squirting Flower	Left Handed	Spiky Tiara	Itchy Powder
Prince Roman the Third	Rubber Hammer	Stink Bomb	Left Handed	Spiky Tiara	Itchy Powder
Lord Ryan of McRyan	Velvet Rope	Confetti Cannon	Right Handed	Golden Helmet	Tickle Feathers
Sir Donnie Slifty	Glitchy Laser	Stink Bomb	Left Handed	Golden Helmet	Loud Whistles
Roman the Wrecker	Giant Spoon	Smoke Bomb	Right Handed	Neon Wig	Itchy Powder
Captain Ryan McSqueak	Rubber Hammer	Confetti Cannon	Left Handed	Spiky Tiara	Itchy Powder
Count Ryan Roman	Squeaky Sword	Whoopee Cushion	Left Handed	Spiky Tiara	Tickle Feathers
Ryan McFlynn	Velvet Rope	Squirting Flower	Right Handed	Golden Helmet	Itchy Powder
General Roman Buster	Velvet Rope	Whoopee Cushion	Left Handed	Golden Helmet	Itchy Powder
Sir Donnie the Bold	Squeaky Sword	Confetti Cannon	Left Handed	Neon Wig	Loud Whistles
Donnie McRyan	Squeaky Sword	Smoke Bomb	Left Handed	Spiky Tiara	Itchy Powder
Ryan McRoman	Velvet Rope	Stink Bomb	Right Handed	Neon Wig	Loud Whistles
Roman the Conqueror	Squeaky Sword	Whoopee Cushion	Left Handed	Spiky Tiara	Itchy Powder

CLUE 1

Constable Donnie McRyan reviews the castle inventory logs to calculate how many supplies were tampered with during the heist.

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

legs 40 and 75, hypotenuse = $\rightarrow$ **T**

legs 35 and 120, hypotenuse = → **E**

legs 5 and 12, hypotenuse = $\rightarrow$ **B**

legs 32 and 60, hypotenuse = → **A**

legs 24 and 45, hypotenuse = $\rightarrow$ **L**

legs 9 and 40, hypotenuse = → **V**

legs 24 and 70, hypotenuse = → **S**

legs 25 and 60, hypotenuse = → **N**

legs 7 and 24, hypotenuse = → **K**

legs 27 and 120, hypotenuse = $\rightarrow$ **H**

legs 24 and 32, hypotenuse = → **M**

legs 60 and 63, hypotenuse = → **U**

legs 6 and 8, hypotenuse = $\rightarrow$ **D**

legs 10 and 24, hypotenuse = →

legs 36 and 105, hypotenuse = $\rightarrow$

Scratch space:

CLUE 2

Bar model word problems

To compare the height and distance of escape routes, King Roman II lays out bar models on the tactical chart.

Draw a bar model to solve each word problem, then write its letter in the boxes to fill in the missing word.

A witness saw the villain was L D D .

46 74 108 86 133 77 118 74

Donnie McRyan shares 184 royal crowns equally among 4 teams. How many royal crowns does each team get?

draw a bar model

Answer: → L

Donnie McRyan has 9 times as many velvet pillows as a teammate. The teammate has 12 velvet pillows. How many velvet pillows does Donnie McRyan have?

draw a bar model

Answer: → F

Donnie McRyan has 172 velvet pillows, packed 2 to a bag. How many bags can be filled?

draw a bar model

Answer: → T

One group collected 76 squeaky toys and another group collected 57 squeaky toys. How many squeaky toys in all?

draw a bar model

Answer: → H

One group collected 73 squeaky toys and another group collected 45 squeaky toys. How many squeaky toys in all?

draw a bar model

Answer: → N

Donnie McRyan shares 231 squeaky toys equally among 3 teams. How many squeaky toys does each team get?

draw a bar model

Answer: → A

Donnie McRyan has 222 confetti poppers, packed 3 to a bag. How many bags can be filled?

draw a bar model

Answer: → E

CLUE 3

Word problems

Ryan The BOMB gathers witness statements and calculates the exact timeline from the castle guard reports.

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

Someone scared the villain off with .

48 93 49 98 67 118 82

Donnie McRyan lined up 6 rows of 8 velvet pillows. How many velvet pillows in all?

Answer: →

There were 107 velvet pillows. 40 were used up. How many velvet pillows are left?

Answer: →

There were 156 golden goblets. 38 were used up. How many golden goblets are left?

Answer: →

There were 138 confetti poppers. 40 were used up. How many confetti poppers are left?

Answer: →

Donnie McRyan found 6 velvet pillows yesterday and 87 more today. How many velvet pillows in all?

Answer: →

There were 84 golden goblets. 35 were used up. How many golden goblets are left?

Answer: →

There were 112 velvet pillows. 30 were used up. How many velvet pillows are left?

Answer: →

Scratch space:

CLUE 5**Division facts (1-12) - the last clue**

The royal guards divide the suspects into smaller inspection groups to narrow down the final evidence.

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:

$4 \div 1 = \boxed{}$

$48 \div 4 = \boxed{}$

$100 \div 10 = \boxed{}$

$40 \div 8 = \boxed{}$

$22 \div 11 = \boxed{}$

$8 \div 1 = \boxed{}$

$8 \div 8 = \boxed{}$

$81 \div 9 = \boxed{}$

$49 \div 7 = \boxed{}$

$33 \div 3 = \boxed{}$

$48 \div 8 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain brandished a giant spoon, then triggered a squirting flower.
2. The villain twirled a velvet rope, then dropped a smoke bomb.
3. The villain threw a rubber hammer, then tossed a stink bomb.
4. The villain twirled a velvet rope, then triggered a squirting flower.
5. The villain twirled a velvet rope, then blasted a confetti cannon.
6. The villain brandished a giant spoon, then tossed a stink bomb.
7. The villain twirled a velvet rope, then placed a whoopee cushion.
8. The villain fired a glitchy laser, then blasted a confetti cannon.
9. The villain threw a rubber hammer, then placed a whoopee cushion.
10. The villain threw a rubber hammer, then blasted a confetti cannon.
11. The villain swung a squeaky sword, then blasted a confetti cannon.
12. The villain swung a squeaky sword, then placed a whoopee cushion.

Answer Key

The Great Crown Heist of McRyan Castle

Culprit: Prince Roman the Third

Rubber Hammer · Stink Bomb · Left Handed · Spiky Tiara · Itchy Powder

Trail: Start 21 → Clue 1 18 → Clue 2 11 → Clue 3 6 → Clue 4 4 → Clue 5 1

Clue 1 (Pythagorean theorem): "THE VILLAIN DOES NOT USE A SMOKE BOMB"

legs 40 and 75, hypotenuse = 85 (T) · legs 35 and 120, hypotenuse = 125 (E) · legs 5 and 12, hypotenuse = 13 (B) · legs 32 and 60, hypotenuse = 68 (A) · legs 24 and 45, hypotenuse = 51 (L) · legs 9 and 40, hypotenuse = 41 (V) · legs 24 and 70, hypotenuse = 74 (S) · legs 25 and 60, hypotenuse = 65 (N) · legs 7 and 24, hypotenuse = 25 (K) · legs 27 and 120, hypotenuse = 123 (H) · legs 24 and 32, hypotenuse = 40 (M) · legs 60 and 63, hypotenuse = 87 (U) · legs 6 and 8, hypotenuse = 10 (D) · legs 10 and 24, hypotenuse = 26 (O) · legs 36 and 105, hypotenuse = 111 (I)

Clue 2 (Bar model word problems): "LEFT HANDED"

Donnie McRyan shares 184 royal crowns equally among 4 teams. How many royal crowns does each team get? = 46 (L) · Donnie McRyan has 9 times as many velvet pillows as a teammate. The teammate has 12 velvet pillows. How many velvet pillows does Donnie McRyan have? = 108 (F) · Donnie McRyan has 172 velvet pillows, packed 2 to a bag. How many bags can be filled? = 86 (T) · One group collected 76 squeaky toys and another group collected 57 squeaky toys. How many squeaky toys in all? = 133 (H) · One group collected 73 squeaky toys and another group collected 45 squeaky toys. How many squeaky toys in all? = 118 (N) · Donnie McRyan shares 231 squeaky toys equally among 3 teams. How many squeaky toys does each team get? = 77 (A) · Donnie McRyan has 222 confetti poppers, packed 3 to a bag. How many bags can be filled? = 74 (E)

Clue 3 (Word problems): "ITCHY POWDER"

Donnie McRyan lined up 6 rows of 8 velvet pillows. How many velvet pillows in all? = 48 (I) · There were 107 velvet pillows. 40 were used up. How many velvet pillows are left? = 67 (Y) · There were 156 golden goblets. 38 were used up. How many golden goblets are left? = 118 (P) · There were 138 confetti poppers. 40 were used up. How many confetti poppers are left? = 98 (H) · Donnie McRyan found 6 velvet pillows yesterday and 87 more today. How many velvet pillows in all? = 93 (T) · There were 84 golden goblets. 35 were used up. How many golden goblets are left? = 49 (C) · There were 112 velvet pillows. 30 were used up. How many velvet pillows are left? = 82 (O)

Clue 4 (Multi-step word problems): "SPIKY TIARA"

Donnie McRyan collected 139 confetti poppers in the morning and 17 confetti poppers in the afternoon, then split them equally among 6 The Royal Guard. How many confetti poppers did each get? = 26 (S) · Donnie McRyan earned 6 squeaky toys in each of 5 rounds, plus 56 bonus squeaky toys. Then 15 squeaky toys were lost. How many squeaky toys are left? = 71 (P) · Donnie McRyan earned 3 golden goblets in each of 6 rounds, plus 75 bonus golden goblets. Then 5 golden goblets were lost. How many golden goblets are left? = 88 (Y) · Donnie McRyan earned 3 velvet pillows in each of 4 rounds, plus 49 bonus velvet pillows. Then 5 velvet pillows were lost. How many velvet pillows are left? = 56 (I) · Donnie McRyan earned 3 royal crowns in each of 2 rounds, plus 79 bonus royal crowns. Then 11 royal crowns were lost. How many royal crowns are left? = 74 (T) · Donnie McRyan earned 6 squeaky toys in each of 5 rounds, plus 32 bonus squeaky toys. Then 10 squeaky toys were lost. How many squeaky toys are left? = 52 (A) · Donnie McRyan collected 49 squeaky toys in the morning and 215 squeaky toys in the afternoon, then split them equally among 6 The Royal Guard. How many squeaky toys did each get? = 44 (K)

Clue 5 (Division facts (1-12)): surviving statement is box 3 → Prince Roman the Third

$4 \div 1 = 4$ · $48 \div 4 = 12$ · $100 \div 10 = 10$ · $40 \div 8 = 5$ · $22 \div 11 = 2$ · $8 \div 1 = 8$ · $8 \div 8 = 1$ · $81 \div 9 = 9$ · $49 \div 7 = 7$ · $33 \div 3 = 11$ · $48 \div 8 = 6$