The Masquerade Studio Mystery

Grade 5 math · Rounding, Multiplication, Subtraction, Place value, Division · Reading level grades 5-6

Detective: _____ **Date:** _____

A mysterious masked figure has sabotaged the annual costume gala exhibit. Decipher the clues to reveal who ruined the grand opening!

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 Phantom Designer is _____

Possible suspects

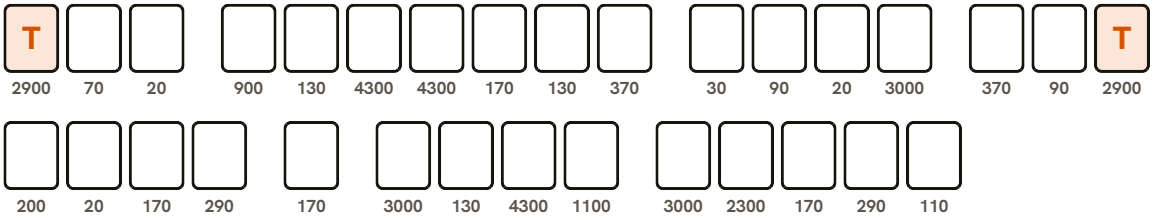
Cross off a row as each clue rules it out. The one left at the end is the culprit.

NAME	PRIMARY ART TECHNIQUE	COSTUME ACCESSORY	DOMINANT HAND	HAIRSTYLE	DISLIKED DISTRACTION
Diego	Glitter Cannon	Feather Boa	Right Handed	Blue Wig	Water Sprays
Piet	Paint Blaster	Neon Mask	Left Handed	Blue Wig	Loud Music
Winslow	Fabric Weaver	Neon Mask	Right Handed	Blue Wig	Water Sprays
Jackson	Clay Molder	Neon Mask	Right Handed	Blue Wig	Loud Music
Camille	Clay Molder	Silk Scarf	Right Handed	Blue Wig	Loud Music
Claude	Glitter Cannon	Feather Boa	Left Handed	Silver Bun	Water Sprays
Frida	Clay Molder	Velvet Cape	Right Handed	Blue Wig	Loud Music
Georgia	Glitter Cannon	Neon Mask	Right Handed	Silver Bun	Loud Music
Joan	Fabric Weaver	Golden Apron	Right Handed	Silver Bun	Loud Music
Salvador	Clay Molder	Velvet Cape	Left Handed	Silver Bun	Loud Music
Edgar	Ink Sprayer	Golden Apron	Right Handed	Blue Wig	Loud Music
Grant	Clay Molder	Golden Apron	Right Handed	Blue Wig	Loud Music
Andy	Fabric Weaver	Feather Boa	Right Handed	Spiky Mohawk	Water Sprays
Rene	Glitter Cannon	Silk Scarf	Left Handed	Blue Wig	Loud Music
Marc	Paint Blaster	Silk Scarf	Right Handed	Silver Bun	Loud Music
Leonardo	Paint Blaster	Golden Apron	Left Handed	Spiky Mohawk	Water Sprays
Auguste	Ink Sprayer	Feather Boa	Left Handed	Blue Wig	Loud Music
Paul	Fabric Weaver	Golden Apron	Right Handed	Blue Wig	Bright Lights
Georges	Clay Molder	Golden Apron	Left Handed	Blue Wig	Loud Music
Vincent	Ink Sprayer	Silk Scarf	Right Handed	Silver Bun	Water Sprays
Mary	Clay Molder	Velvet Cape	Right Handed	Spiky Mohawk	Loud Music

CLUE 1 Rounding

The digital display on the gallery security scanner only shows rounded numbers for fabric thread counts.

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



Round 2,896 to the nearest hundred ☐ → T

Round 899 to the nearest hundred ☐ → V

Round 2,578 to the nearest thousand ☐ → S

Round 197 to the nearest hundred ☐ → W

Round 29 to the nearest ten ☐ → D

Round 89 to the nearest ten ☐ → O

Round 289 to the nearest ten ☐ → R

Round 170 to the nearest ten ☐ → A

Round 19 to the nearest ten ☐ → E

Round 126 to the nearest ten ☐ → I

Round 2,282 to the nearest hundred ☐ → C

Round 69 to the nearest ten ☐ → H

Round 1,084 to the nearest hundred ☐ → K

Round 374 to the nearest ten ☐ → N

Round 108 to the nearest ten ☐ → F

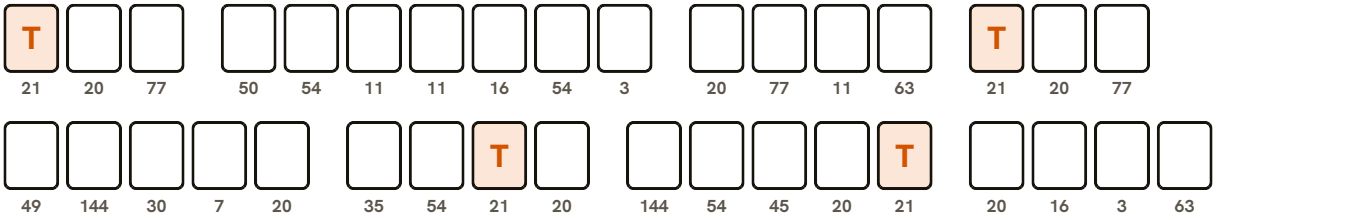
Round 4,328 to the nearest hundred ☐ → L

Scratch space:

CLUE 2 Multiplication facts (1-12)

> Inside the costume workshop, rows of mannequin stands hold equal sets of decorative buttons.

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



- 7 × 3 = ☐ → T
- 10 × 5 = ☐ → V
- 3 × 1 = ☐ → N
- 5 × 4 = ☐ → H
- 9 × 5 = ☐ → G
- 9 × 6 = ☐ → I
- 2 × 8 = ☐ → A
- 12 × 12 = ☐ → R
- 7 × 11 = ☐ → E
- 7 × 7 = ☐ → B
- 9 × 7 = ☐ → D
- 5 × 7 = ☐ → W
- 1 × 7 = ☐ → S
- 1 × 11 = ☐ → L
- 3 × 10 = ☐ → U

Scratch space:

CLUE 3 Subtraction

> The curator compares the total supply of paint tubes left in the studio against yesterday's inventory.

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



8565 - 1545 = ☐ → L

6940 - 4478 = ☐ → S

9964 - 4889 = ☐ → O

7673 - 773 = ☐ → U

7252 - 2895 = ☐ → R

4007 - 2205 = ☐ → M

7764 - 4667 = ☐ → P

8877 - 3647 = ☐ → G

3560 - 1 = ☐ → D

8653 - 3200 = ☐ → C

8641 - 694 = ☐ → I

9513 - 1190 = ☐ → T

7146 - 3779 = ☐ → E

8327 - 1913 = ☐ → A

6949 - 4195 = ☐ → N

6224 - 1983 = ☐ → H

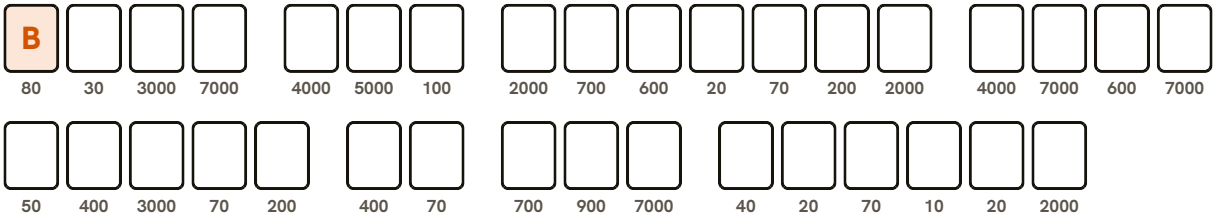
Scratch space:

CLUE 4

Place value

A locker key pad requires analyzing the value of specific digits in the costume vault code.

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



What is the value of the 8 in 69,586? ☐ → B

What is the value of the 7 in 183,794? ☐ → T

What is the value of the 6 in 204,682? ☐ → R

What is the value of the 7 in 17,106? ☐ → E

What is the value of the 3 in 122,534? ☐ → L

What is the value of the 5 in 95,327? ☐ → I

What is the value of the 4 in 14,588? ☐ → W

What is the value of the 1 in 802,618? ☐ → V

What is the value of the 3 in 683,709? ☐ → U

What is the value of the 2 in 752,317? ☐ → S

What is the value of the 7 in 243,479? ☐ → N

What is the value of the 2 in 839,258? ☐ → D

What is the value of the 4 in 27,460? ☐ → O

What is the value of the 5 in 93,454? ☐ → F

What is the value of the 2 in 966,320? ☐ → A

What is the value of the 9 in 833,955? ☐ → H

What is the value of the 1 in 93,170? ☐ → G

What is the value of the 4 in 72,849? ☐ → C

Scratch space:

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

> The prop master divides a large shipment of glitter jars equally among the costume racks.

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:

7 ÷ 1 = ☐ | 2 ÷ 2 = ☐ | 15 ÷ 3 = ☐ | 36 ÷ 3 = ☐ | 8 ÷ 1 = ☐

12 ÷ 6 = ☐ | 44 ÷ 11 = ☐ | 72 ÷ 12 = ☐ | 121 ÷ 11 = ☐ | 33 ÷ 11 = ☐

100 ÷ 10 = ☐

Step 2 - cross out the sentence with each answer:

1. The villain molded giant clay barricades, then flashed a glowing neon mask.
2. The villain sprayed neon paint across the gallery, then left a silk scarf tied to the frame.
3. The villain squirted indelible ink on the paintings, then left a silk scarf tied to the frame.
4. The villain wove intricate tapestry traps, then left a silk scarf tied to the frame.
5. The villain molded giant clay barricades, then wiped paint on a golden apron.
6. The villain blasted blinding glitter into the hall, then draped a velvety cape over the statue.
7. The villain squirted indelible ink on the paintings, then wiped paint on a golden apron.
8. The villain wove intricate tapestry traps, then dropped feather boa strands behind.
9. The villain molded giant clay barricades, then draped a velvety cape over the statue.
10. The villain molded giant clay barricades, then dropped feather boa strands behind.
11. The villain molded giant clay barricades, then left a silk scarf tied to the frame.
12. The villain sprayed neon paint across the gallery, then draped a velvety cape over the statue.

TEACHER / PARENT

Answer Key

The Masquerade Studio Mystery

Culprit: Frida

Clay Molder · Velvet Cape · Right Handed · Blue Wig · Loud Music

Trail: Start 21 → Clue 1 17 → Clue 2 11 → Clue 3 7 → Clue 4 4 → Clue 5 1

Clue 1 (Rounding): "THE VILLAIN DOES NOT WEAR A SILK SCARF"

Round 2,896 to the nearest hundred = 2900 (T) · Round 899 to the nearest hundred = 900 (V) · Round 2,578 to the nearest thousand = 3000 (S) · Round 197 to the nearest hundred = 200 (W) · Round 29 to the nearest ten = 30 (D) · Round 89 to the nearest ten = 90 (O) · Round 289 to the nearest ten = 290 (R) · Round 170 to the nearest ten = 170 (A) · Round 19 to the nearest ten = 20 (E) · Round 126 to the nearest ten = 130 (I) · Round 2,282 to the nearest hundred = 2300 (C) · Round 69 to the nearest ten = 70 (H) · Round 1,084 to the nearest hundred = 1100 (K) · Round 374 to the nearest ten = 370 (N) · Round 108 to the nearest ten = 110 (F) · Round 4,328 to the nearest hundred = 4300 (L)

Clue 2 (Multiplication facts (1-12)): "THE VILLAIN HELD THE BRUSH WITH RIGHT HAND"

7 × 3 = 21 (T) · 10 × 5 = 50 (V) · 3 × 1 = 3 (N) · 5 × 4 = 20 (H) · 9 × 5 = 45 (G) · 9 × 6 = 54 (I) · 2 × 8 = 16 (A) · 12 × 12 = 144 (R) · 7 × 11 = 77 (E) · 7 × 7 = 49 (B) · 9 × 7 = 63 (D) · 5 × 7 = 35 (W) · 1 × 7 = 7 (S) · 1 × 11 = 11 (L) · 3 × 10 = 30 (U)

Clue 3 (Subtraction): "LOUD MUSIC DISTRACTED THE PHANTOM DESIGNER"

8565 - 1545 = 7020 (L) · 6940 - 4478 = 2462 (S) · 9964 - 4889 = 5075 (O) · 7673 - 773 = 6900 (U) · 7252 - 2895 = 4357 (R) · 4007 - 2205 = 1802 (M) · 7764 - 4667 = 3097 (P) · 8877 - 3647 = 5230 (G) · 3560 - 1 = 3559 (D) · 8653 - 3200 = 5453 (C) · 8641 - 694 = 7947 (I) · 9513 - 1190 = 8323 (T) · 7146 - 3779 = 3367 (E) · 8327 - 1913 = 6414 (A) · 6949 - 4195 = 2754 (N) · 6224 - 1983 = 4241 (H)

Clue 4 (Place value): "BLUE WIG STRANDS WERE FOUND ON THE CANVAS"

What is the value of the 8 in 69,586? = 80 (B) · What is the value of the 7 in 183,794? = 700 (T) · What is the value of the 6 in 204,682? = 600 (R) · What is the value of the 7 in 17,106? = 7000 (E) · What is the value of the 3 in 122,534? = 30 (L) · What is the value of the 5 in 95,327? = 5000 (I) · What is the value of the 4 in 14,588? = 4000 (W) · What is the value of the 1 in 802,618? = 10 (V) · What is the value of the 3 in 683,709? = 3000 (U) · What is the value of the 2 in 752,317? = 2000 (S) · What is the value of the 7 in 243,479? = 70 (N) · What is the value of the 2 in 839,258? = 200 (D) · What is the value of the 4 in 27,460? = 400 (O) · What is the value of the 5 in 93,454? = 50 (F) · What is the value of the 2 in 966,320? = 20 (A) · What is the value of the 9 in 833,955? = 900 (H) · What is the value of the 1 in 93,170? = 100 (G) · What is the value of the 4 in 72,849? = 40 (C)

Clue 5 (Division facts (1-12)): surviving statement is box 9 → Frida

7 ÷ 1 = 7 · 2 ÷ 2 = 1 · 15 ÷ 3 = 5 · 36 ÷ 3 = 12 · 8 ÷ 1 = 8 · 12 ÷ 6 = 2 · 44 ÷ 11 = 4 · 72 ÷ 12 = 6 · 121 ÷ 11 = 11 · 33 ÷ 11 = 3 · 100 ÷ 10 = 10