Who, where and when?

Who?

One of the following four people has committed a crime. The criminal made 2 errors, the victim has made 0 errors and the other two suspects have made 1 error.

The plumber made the following statements:

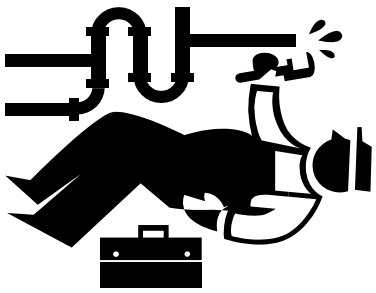
1000 x 20
- 972 x 18 ≈ 20,000 ✓

(6 − 4) x 40 = 2 x 40 = 80
- (5.67 − 3.85) x (39) ≈ 40 ✗

$0.4^2 = 0.4 \times 0.4$
- $0.39^2 \approx 0.16$ ✓

$30^2 = 30 \times 30 = 900$
- $(34.2)^2 \approx 90$ ✗

CRIMINAL



The waiter made the following statements:

500 x 2 = 1000
- 498 x 2.18 ≈ 1000 ✓

300 x 0.7
- 331 x 0.68 ≈ 210 ✓

10 ÷ 5
- 13.92 ÷ 4.8 ≈ 2 ✓

900 ÷ 100 = 9
- 881 ÷ 99 ≈ 8.8 ✗

SUSPECT

The carpenter made the following statements:

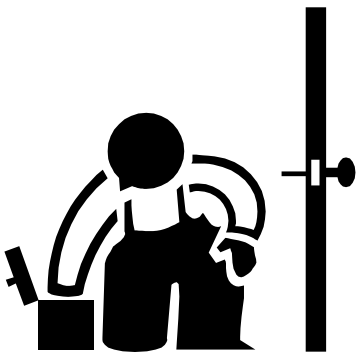
$\sqrt{400}$
- √413 ≈ 20 ✓

40 x (6+6) = 40 x 12
- 36.8 x (5.7 + 6.4) ≈ 480 ✓

0.1 ÷ 0.1
- 0.143 ÷ 0.116 ≈ 1 ✓

200 ÷ 500 = 0.4
- 159 ÷ 512 ≈ 2.5 ✗

SUSPECT



The photographer made the following statements

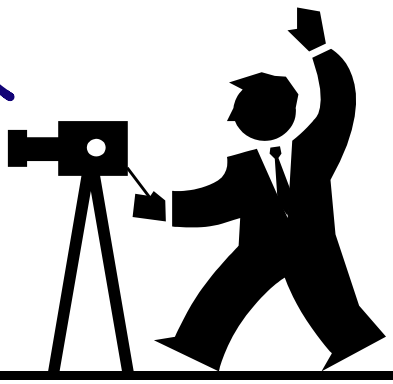
7 x 10 = 70
- 7.2 x 9.7 ≈ 70 ✓

4 ÷ 0.5
- 4.189 ÷ 0.477 ≈ 8 ✓

4 x 7
- 4.19 x 6.68 ≈ 28 ✓

100 ÷ 5
- 105.6 ÷ 5.12 ≈ 20 ✓

VICTIM



Where?

The murder was committed at one of the locations below, but which one?
It happened where BOTH answers are the same.

The lounge	$3.8 \times \sqrt{385} \approx$ $4 \times \sqrt{400} = 4 \times 20 = 80$ $\frac{543}{18.1} + \frac{472}{10.9} \approx \frac{500}{20} + \frac{500}{10} = 25 + 50 = 75$
The hall	$96.6 \times 4.9^2 \approx 100 \times 5^2 = 100 \times 25 = 2500$ $\frac{28.2 \times 3.14}{8.99} \approx \frac{30 \times 3}{9} = 10$
The gardens	$\frac{54.3 + 47.2}{9.8 + 10.9} \approx \frac{50 + 50}{10 + 10} = \frac{100}{20} = 5$ $\frac{\sqrt{(5.21 \times 8.35 \times 0.105)}}{1.72^2} \approx \frac{\sqrt{5 \times 8 \times 0.1}}{2^2} = \frac{\sqrt{4}}{4} = \frac{2}{4} = \frac{1}{2}$ or 0.5
The kitchen	$\frac{2.5 \times 3.6}{5.9} \approx \frac{3 \times 4}{6} = \frac{12}{6} = 2$ SAME ANSWERS $\frac{0.21 \times 98}{103.1 \div 9.6} \approx \frac{0.2 \times 100}{100 \div 10} = \frac{20}{10} = 2$

When?

Find the day where **BOTH statements** are correct:

Monday	✓	$(7.89 \times 10^5) \div (4.73 \times 10^3) \approx 1.6 \times 10^2$ $(8 \times 10^5) \div (5 \times 10^3)$
	✗	$(1.98 \times 10^5) \times (4.65 \times 10^4) \approx 1 \times 10^9$ $(2 \times 10^5) \times (5 \times 10^4) = 1 \times 10^{10}$
Tuesday	✓	$(1.25 \times 10^3)^2 \div (3.6 \times 10^4) \approx 25$ $(1 \times 10^3)^2 \div (4 \times 10^4) = 25$
	✗	$(1.5 \times 10^8) \times (7.2 \times 10^{-4}) \approx 1.4 \times 10^{-4}$ $2 \times 10^8 \times 7 \times 10^{-4} = 1.4 \times 10^5$
Wednesday	✓	$(3.64 \times 10^7) \times (2.4 \times 10^{-5}) \approx 8 \times 10^2$ $4 \times 10^7 \times 2 \times 10^{-5}$
	✗	$(4 \times 10^7) \div (2 \times 10^{-5}) \approx 2 \times 10^2$ 2×10^{12}
Thursday	✓	$(5.84 \times 10^4) \div (2.68 \times 10^{-2}) \approx 2 \times 10^6$ $6 \times 10^4 \div 3 \times 10^{-2}$
	✓	$(3.52 \times 10^4) \times (1.44 \times 10^8) \approx 4 \times 10^{12}$ $4 \times 10^4 \times 1 \times 10^8$
Friday	✓	$(5.59 \times 10^2) \div (1.87 \times 10^5) \approx 3 \times 10^{-3}$ $6 \times 10^2 \div 2 \times 10^5$
	✗	$(8.17 \times 10^{-3}) \div (1.52 \times 10^{-2}) \approx 4 \times 10^{-5}$ $8 \times 10^{-3} \div 2 \times 10^{-2} = 0.4$ 4×10^{-1}

The Accusation

Who	Victim: Photographer Criminal: Plumber
Where	The kitchen
When	Thursday