

# Burglary Mystery

## Algebra

### Who

One of the 4 characters below has stolen Mrs C's jewellery. Analyse the number problems to discover the thief

Each one has said which of the numerical statements they believe are true or false.

The innocent people have only made 1 or 2 errors. The guilty person has made 3 errors. Answer TRUE or FALSE to the next set of questions

- A)  $4t$  and  $6t$  are like terms
- B)  $5g$  and  $5t$  are like terms
- C)  $G = 23 - t$  is an expression
- D)  $3acd$  and  $6cda$  are like terms

- E)  $5mt + 2d$  is a Term
- F)  $4mt + 5f$  is an expression
- G)  $G = 5t + 8$  is an equation
- H)  $rt = r \times t$

The Farmer said

- A is true
- C is true
- D is false
- H is true



D is false

The journalist said

- G is True
- C is true
- D is true
- F is true



The Engineer said

- D is true
- C is false
- E is true
- B is false



### Where

The Burglary took place for the correct expression to: Chris is 2 years older than Jenny. If Jenny is  $y$  years old then the expression for Chris's age is

Warnambool if this is correct

$y - 2$

Wyndham if this is correct

$2y$

Maryborough if this is correct

$y + 2$

Morgan if this is correct

2

Menindee if this is correct y/2

**When** Calculate each answer to find the time and date

The formula used is						A) $b = a + 5$ The time was 9.14 pm	B) $b = 3a$ The time was 19:24
A	0	1	3	6	36	C) $b = a + 2$ The time was 7.24 pm	D) $b = a - 5$ The time was 11:14 pm
B	2	3	5	8	38		

The formula used is						A) $a = 8b + 1$ The date was 3/1/15	B) $a = 3b + 5$ The date was 1/5/15
b	1	2	9	14	65	C) $a = 2b + 7$ The date was 1/7/15	D) $a = b + 8$ The date was 3/11/15
A	9	11	25	35	13 7		

**Why.** Decode the message to find out why Mrs C's jewellery was stolen  
Substitute the given values into each formula to find the value of the following pronumerals

<b>a</b> $A = g - 2$ when $g = 4$	<b>b</b> $B = g - 2$ when $g = 5$	<b>c</b> $C = 2t - 3$ when $t = 7$	<b>d</b> $D = 2t - 3$ when $t = 2$	<b>e</b> $E = 12h + 7$ when $h = 1$
<b>f</b> $E = 12h + 7$ when $h = 0$	<b>g</b> $G = 25 - 4w$ when $w = 1$	<b>h</b> $H = 25 - 4w$ when $w = 5$	<b>i</b> $I = 2(g + 1)$ when $g = 1$	<b>j</b> $J = 2(g + 1)$ when $g = 12$

**Simplify the following expressions to find value of pronumerals**

<b>k</b> $6y - 2y + y$	<b>l</b> $8t - 2m + 3t$	<b>m</b> $7g + 8g + 8 - 4$	<b>n</b> $2b + 7c + 8b$	<b>o</b> $6b + 3c + 4b - c$
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**Expand the following and simplify if possible**

<b>p</b> $7(m - 3k)$	<b>q</b> $W(G + 9a)$	<b>r</b> $2y(8h - 7)$	<b>s</b> $10m(7r - 2p)$	<b>t</b> $4j(6x - 3y)$
<b>u</b> $5(t - 2s) - 3t$	<b>v</b> $4(a + 3g) - 2g$	<b>w</b> $d(3f + 9) - 2d$	<b>x</b> $4z(2 - a) + 7z$	<b>y or z</b> $3p(f - 2q) + 7p$

**Because....**

70mr - 20pm	5	19	24jx - 12jy	5	10b + 2c	2t - 10s	21	5	24jx - 12jy	2
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11	4	16yh - 14y	11	11t - 2m	19	3fd + 7d	2	70mr - 20pm	216yh - 14y	10b + 2c	2t - 10s
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10b + 7c	1	70mr - 20pm	24jx - 12jy	16yh - 14y	2	4	21	5	24jx - 12jy	11	5
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2	4	10b +7c	3fd+7d	4	24jx-12jy	2	5	10b+2c	11t-2m	19	4	10b+7c

24jx-12jy	5	19	15g+4	4	1	1	11t-2m	19	

**Final Accusation**

<b>Who</b>	
<b>Where</b>	
<b>When</b>	
<b>Why</b>	