

Difference of Two Squares

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3 times table

$$\begin{array}{r} 2 \downarrow 2 \\ 4 \end{array}$$

$$\text{dif} = \boxed{12}$$

$$\begin{array}{r} 4 \downarrow 5 \\ 20 \end{array}$$

$$\text{dif} = \boxed{24}$$

$$\begin{array}{r} 7 \downarrow 8 \\ 56 \end{array}$$

$$\text{dif} = \boxed{36}$$

5 times table

$$\begin{array}{r} 2 \downarrow 9 \\ 18 \end{array}$$

$$\text{dif} = \boxed{20}$$

Algorithms

- We spotted an algorithm

$$3 \rightarrow 4 - 2 = 2$$

$$2 \times 2 = 4$$

$$4 \times 3 = \boxed{12}$$

$$6 \rightarrow 7 - 5 = 2$$

$$2 \times 2 = 4$$

$$4 \times 6 = \boxed{24}$$

$$9 \rightarrow 10 - 8 = 2$$

$$2 \times 2 = 4$$

$$4 \times 9 = \boxed{36}$$

Algebra

n	3n	5n
1	3	5
2	6	10
3	9	15
4	12	20

$$3n-1, 3n, 3n+1$$

$$(3n+1)^2 - (3n-1)^2 =$$

$$= 9n^2 + 6n + 1 - (9n^2 - 6n + 1) = 12n$$

$$3n \times 4 = 12n \text{ (referring to algorithm)}$$

$$(5n+1)^2 - (5n-1)^2 =$$

$$= 25n^2 + 10n + 1 - (25n^2 - 10n + 1) = 20n$$

$$5n \times 4 = 20n \text{ (referring to algorithm)}$$

Time table = t

$$(tn+1)^2 - (tn-1)^2 =$$

$$= (tn)^2 + 2tn + 1 - ((tn)^2 - 2tn + 1) = 4tn$$

$$tn \times 4 = 4tn \text{ (referring to algorithm)}$$