

Portfolio task 5.1

Describe the following operations on a 100 square:

Adding 10

Subtracting 11

Adding 27

Try to describe the 'move' you make – for example, to add 11, 'I move down one row and one column to the right.'

Add these notes to your personal portfolio.

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|----|----|----|----|----|----|----|----|----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

Portfolio task 5.2

Explore the link between square numbers and triangle numbers. If we call the square numbers S_1, S_2, S_3, S_4 , and so on, so that:

$$S_1 = 1, S_2 = 4, S_3 = 9, S_4 = 16\dots$$

And the triangle numbers T_1, T_2, T_3, T_4 so that:

$$T_1 = 1, T_2 = 3, T_3 = 6, T_4 = 10\dots$$

Try to represent any square number as the sum of two triangle numbers. Try to illustrate your answer with a picture.

Portfolio task 5.3

Use the distributive property to carry out the following calculations mentally – draw a sketch to illustrate the calculation:

$$18 \times 8$$

$$34 \times 7$$

$$29 \times 14$$

$$48 \times 6$$

Check with a calculator to convince yourself!

Portfolio task 5.4

Explore patterns in the 4 and 9 times-tables. Are there rules that you can find so that you know if a large number is divisible by 4 or by 9?