Without a calculator

What is the value of each of the following?

calculators not allowed

$$9^2 - 1^2$$

$$99^2 - 1^2$$

$$999^2 - 1^2$$

Hints available on the next slide

Without a calculator Hint

What is the value of each of the following?

$$9^2 - 1^2$$

$$99^2 - 1^2$$

$$999^2 - 1^2$$

- Can you factorise $9^2 - 1^2$?
- How does this help?

Still without a calculator

Without using a calculator, find the value of

$$\frac{122 \times (122^2 + 4 \times 123)}{124} - \frac{124 \times (124^2 - 4 \times 123)}{122}$$

Hints available on the next slide

Still without a calculator Hint

Without using a calculator, find the value of

$$\frac{122 \times (122^2 + 4 \times 123)}{124} - \frac{124 \times (124^2 - 4 \times 123)}{122}$$

It might seem strange advice but…..

- Replace 123 by n and 122 by $n-1$
- Now go on to factorise

Top and Bottom

Simplify

$$\frac{x^2 - 3x - 10}{x^2 + 7x + 10}$$

Hints available on the next slide

Top and Bottom Hint

Simplify

$$\frac{x^2 - 3x - 10}{x^2 + 7x + 10}$$

- Factorise the numerator then the denominator
- What do you notice?