

Corbettmaths - Difference between two squares

Activity 1:

Factorise the following expressions

- | | | | |
|------------------|------------------|---------------------|-------------------|
| 1) $x^2 - 25$ | 2) $x^2 - 100$ | 3) $x^2 - 900$ | 4) $x^2 - 1$ |
| 5) $x^2 - y^2$ | 6) $4x^2 - 9$ | 7) $16x^2 - 49$ | 8) $9x^2 - 16$ |
| 9) $25x^2 - y^2$ | 10) $x^2 - 9y^2$ | 11) $36x^2 - 49y^2$ | 12) $1600 - 9x^2$ |

Activity 2:

Factorise the following expressions

- | | | | |
|---------------------|---------------------|----------------|----------------|
| 1) $2x^2 - 72$ | 2) $2x^2 - 200$ | 3) $2x^2 - 2$ | 4) $3x^2 - 48$ |
| 5) $5x^2 - 125$ | 6) $10x^2 - 90y^2$ | 7) $8x^2 - 50$ | 8) $27 - 3x^2$ |
| 9) $44x^2 - 176y^2$ | 10) $200x^2 - 1250$ | | |

Activity 3:

Factorise the following expressions

- | | | | |
|----------------|-----------------|-------------------|----------------|
| 1) $x^4 - 25$ | 2) $x^4 - y^4$ | 3) $x^4 - 1$ | 4) $x^4 - 81$ |
| 5) $x^6 - 36$ | 6) $4x^4 - 9$ | 7) $25x^4 - 4y^4$ | 8) $x^6 - y^8$ |
| 9) $25x^6 - 1$ | 10) $x^2 - y^6$ | | |

Activity 4:

Correct Helena's homework

Question 1

$$x^2 - 25 = (x - 5)(x - 5)$$

Question 2

$$x^2 - a^2 = (x + y)(x - y)$$

Question 3

$$16x^2 - 25y^2 = (8x + 5y)(8y - 5y)$$

Question 4

$$x^2 + y^2 = (x - y)(x + y)$$

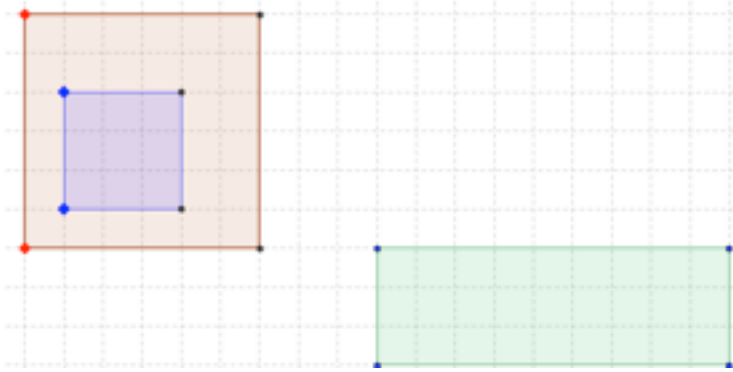
Activity 5:

David is certain that when he factorises $x^2 + y^2$ that the answer is $(x+y)(x+y)$.
Hannah believes the answer would be $(x-y)(x-y)$

Show them that they are both incorrect.

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Extension Task 1:



Explain what the picture above represents

Extension Task 2:

A lot of numbers can be written as the difference between two squares. For example,

$$15 = 8^2 - 7^2$$

$$20 = 6^2 - 4^2$$

- Can you write all the numbers from 1 to 30 as the difference of two squares?
- Investigate the odd numbers...
- Investigate the even numbers...
- Investigate any numbers that were not possible...

Extension Task 3:

$$55^2 - 45^2 = 1000$$

$$105^2 - 95^2 = 2000$$

$$85^2 - 65^2 = 3000$$

- Can you find other multiples of 1000?
- Are there other ways of making 1000?