

Factorising Quadratics

1. $2x^2 + 5x + 2$

7. $6x^2 + 33x - 63$

2. $7x^2 + 8x + 1$

8. $4x^2 + 8x - 96$

3. $4x^2 + 3x - 7$

9. $8x^2 + 10x - 3$

4. $24x^2 + 19x + 2$


10. $6x^2 + 13x + 5$

5. $15x^2 + 2x - 1$

11. $3x^2 - 16x - 12$

6. $16x^2 - 8x + 1$

12. $7x^2 - 37x + 10$

 1. This rectangle is made up of four parts, with areas of $12x^2$, $3x$, $8x$ and 2 square units.

Work out expressions for the sides of the rectangle, in terms of x .

$12x^2$	$3x$
$8x$	2

2. Three students are asked to factorise the expression: $6x^2 + 30x + 36$. These are their answers.

1) $(6x + 12)(x + 3)$

2) $(3x + 6)(2x + 6)$

3) $(2x + 4)(3x + 9)$

All the answers are correctly factorised.

a) Explain why one quadratic expression can have three different factorisations.

b) Which of the following is the most complete factorisation?

1) $2(3x + 6)(x + 3)$

2) $6(x + 2)(x + 3)$

3) $3(x + 2)(2x + 6)$

Explain your choice.



Answers

1) $(2x+1)(x+2)$

2) $(7x+1)(x+1)$

3) $(4x+7)(x-1)$

4) $(3x+2)(8x+1)$

5) $(3x+1)(5x-1)$

6) $(4x-1)^2$

7) $3(x+7)(2x-3)$

8) $4(x+6)(x-4)$

9) $(2x+3)(4x-1)$

10) $(2x+1)(3x+5)$

11) $(x-6)(3x+2)$

12) $(x-5)(7x-2)$

13) $(4x+1)$ and $(3x+2)$

14)

a) All the terms in the quadratic have a common factor of 6.

b) $6(x+2)(x+3)$. This has the highest common factor taken out.