

Algebra 1 - Factoring Polynomials - Worksheet

Common Core A-SSE.A.2, A-SSE.B.3a, A-APR.B.3 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

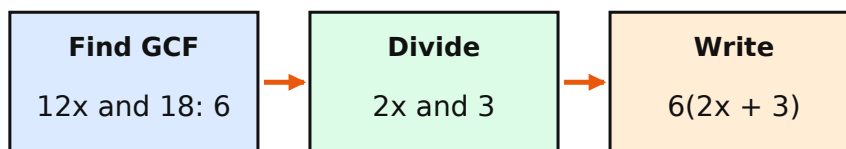
Use these 20 problems to master factoring polynomials (Common Core A-SSE.A.2, A-SSE.B.3a, and A-APR.B.3). You will factor out the GCF, factor trinomials and special patterns, and use factored form to find zeros and solve area and projectile problems. They move from quick warm-ups to multistep word problems, so slow down on the last six and check that each answer makes sense.

Algebra 1 · Common Core State Standards: **A-SSE.A.2, A-SSE.B.3a, A-APR.B.3**

Exercise 1 - Greatest common factor

Find the GCF of 12 and 18, and the GCF of $8x^2$ and $12x$.

Exercise 2 - Factor out the GCF



GCF steps.

Factor $12x+18$.

Exercise 3 - GCF with powers

Factor $15x^3-10x^2$.

Exercise 4 - Trinomial with positive terms

	x	?
x	x^2	
?		12

Find the missing sides.

Factor $x^2+7x+12$.

Exercise 5 - Another positive trinomial

Factor $x^2+10x+21$.

Exercise 6 - Negative constant

Factor x^2-x-12 .

Exercise 7 - Negative middle term

Factor $x^2-8x+15$.

Exercise 8 - Mixed signs

Factor $x^2+4x-21$.

Exercise 9 - Trinomial with a equal to 3

Factor $3x^2+11x+6$.

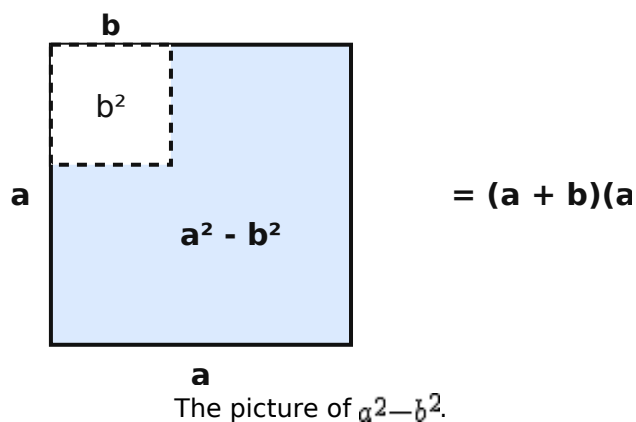
Exercise 10 - Trinomial with a equal to 2

Factor $2x^2-9x+10$.

Exercise 11 - Harder trinomial

Factor $6x^2+x-2$.

Exercise 12 - Difference of squares



Factor x^2-49 .

Exercise 13 - Difference of squares with a coefficient

Factor $4x^2 - 25$.

Exercise 14 - Perfect square trinomials

Pattern	Factored form
$a^2 + 2ab + b^2$	$(a + b)^2$
$a^2 - 2ab + b^2$	$(a - b)^2$

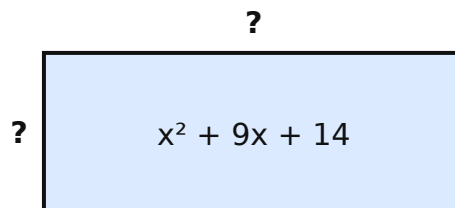
Perfect square patterns.

Factor $x^2 + 10x + 25$ and $9x^2 - 12x + 4$.

Exercise 15 - Factor completely

Factor $2x^2 - 18$ completely.

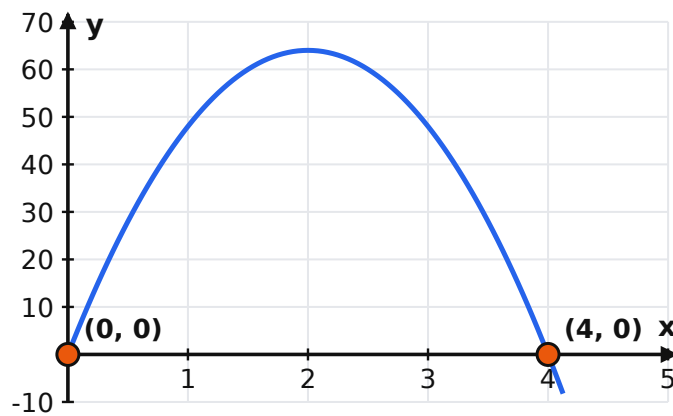
Exercise 16 - Rectangle dimensions



A rectangle with area $x^2 + 9x + 14$.

A rectangle has area $x^2 + 9x + 14$ square feet. Factor to find possible expressions for its length and width.

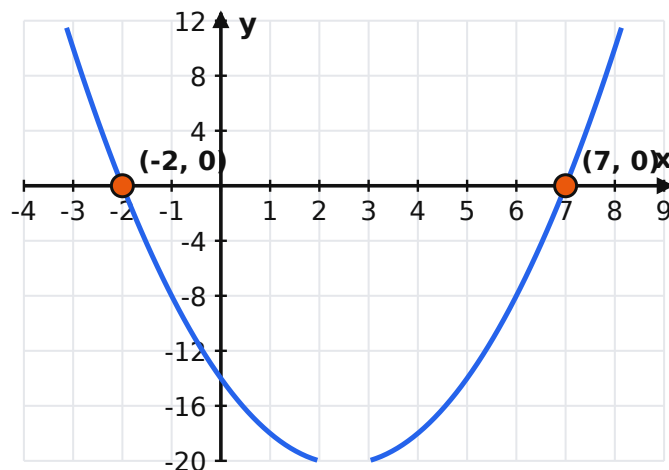
Exercise 17 - Ball in the air



Height of a ball in feet.

A ball's height in feet is $h(t) = -16t^2 + 64t$. Factor the expression and find when the ball is on the ground.

Exercise 18 - Zeros of a function



Graph of the function.

Find the zeros of $f(x) = x^2 - 5x - 14$ by factoring.

Exercise 19 - Garden dimensions

A rectangular garden has area $3x^2 + 12x$ square yards and width $3x$ yards. Factor the area to find the length.

Exercise 20 - Check by substitution

Show that x^2-16 and $(x-4)(x+4)$ have the same value when $x=9$.

Exercise 21 - Mental math

Use a difference of squares to compute 51^2-49^2 without a calculator.