

Algebra 1 · Factoring Polynomials · Worksheet

Common Core A-SSE.A.2, A-SSE.B.3a · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

These 24 problems cover the factoring skills in Common Core A-SSE.A.2 and A-SSE.B.3a: the greatest common factor, trinomials, the difference of squares, perfect squares, grouping, and using factors to find zeros.

The problems begin with simple GCF and trinomial factoring and grow harder. The last six are word problems with areas, projectile height and number puzzles.

Algebra 1 Common Core: A-SSE.A.2 · A-SSE.B.3a

Problem 1: GCF of a binomial

Factor out the greatest common factor: $6x^2 + 9x$.

Problem 2: GCF with powers

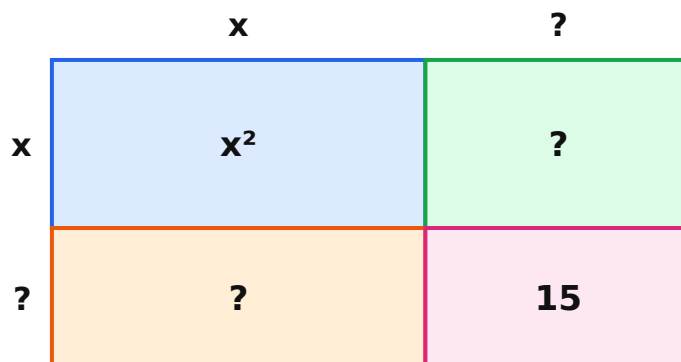
Factor $12a^3 - 20a^2$.

Problem 3: GCF of a trinomial

Factor $8x^3 + 12x^2 - 16x$.

Problem 4: Factor $x^2 + bx + c$

Factor $x^2 + 8x + 15$. The area model shows the first and last cells.



Find the missing side lengths.

Problem 5: Both numbers negative

Factor $x^2 - 9x + 20$.

Problem 6: Opposite signs

Factor $x^2 + 2x - 35$.

Problem 7: Larger negative number

Factor $x^2 - 3x - 28$.

Problem 8: Difference of squares

Factor $x^2 - 49$.

Problem 9: Difference of squares with a coefficient

Factor $25x^2 - 16$.

Problem 10: Perfect square trinomial

Factor $x^2 + 12x + 36$.

Problem 11: Perfect square with a coefficient

Factor $4x^2 - 20x + 25$.

Problem 12: Factor $ax^2 + bx + c$

Factor $2x^2 + 7x + 3$.

Problem 13: $ax^2 + bx + c$, negative middle

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

Problem 14: $ax^2 + bx + c$, negative constant

Factor $6x^2 + x - 15$.

Problem 15: Factor by grouping

Factor $x^3 + 4x^2 + 3x + 12$ by grouping.

Problem 16: GCF then difference of squares

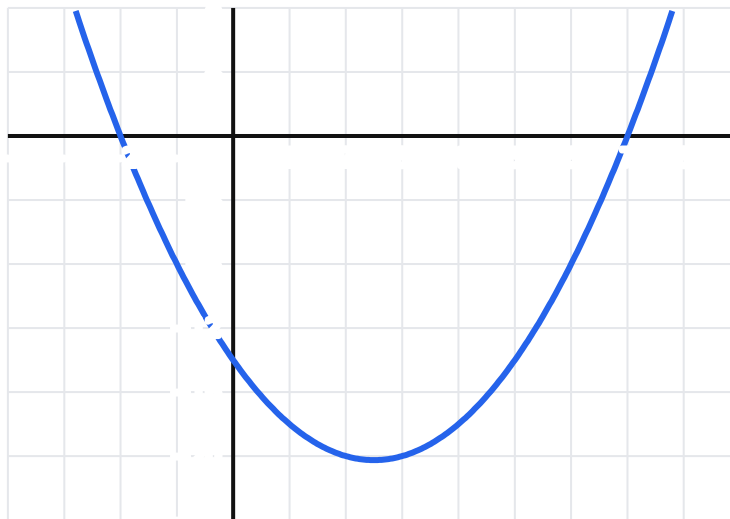
Factor $2x^2-32$ completely.

Problem 17: GCF then perfect square

Factor $3x^3+18x^2+27x$ completely.

Problem 18: Zeros of a quadratic

Solve $x^2-5x-14=0$ by factoring. The graph of $y=x^2-5x-14$ is shown.



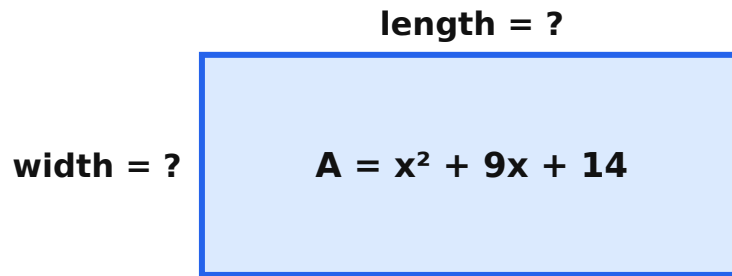
Where does the parabola cross the x-axis?

Problem 19: Zeros with a leading coefficient

Find the zeros of $2x^2+x-6$.

Problem 20: Dimensions of a rectangle

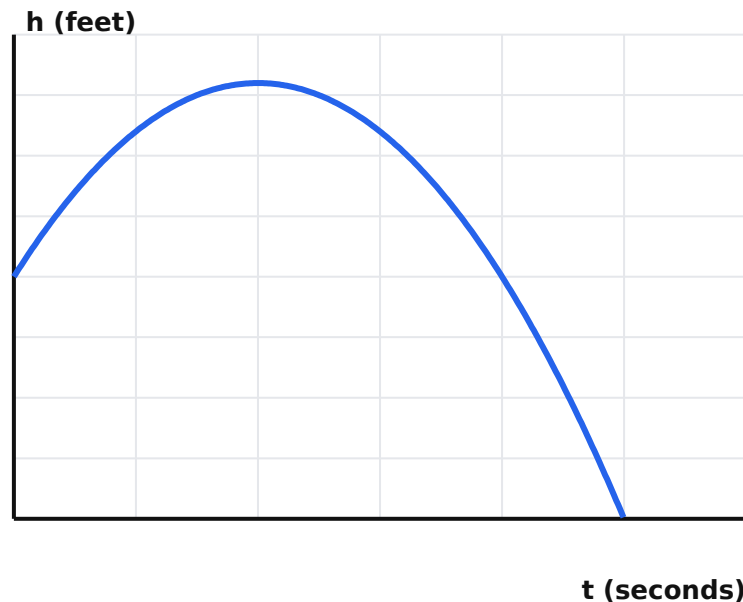
The area of Sofia's rectangular patio is $x^2+9x+14$ square feet. Factor the area to find expressions for its length and width. If the width is 5 feet, find the length and the area.



Sofia's patio.

Problem 21: When does the ball land?

Diego throws a ball upward from a platform. Its height in feet after t seconds is $h = -16t^2 + 64t + 80$. Factor the expression and find when the ball hits the ground ($h = 0$).



Height versus time.

Problem 22: Consecutive integers

The product of two consecutive positive integers is 156. Write an equation, solve it by factoring and find the integers.

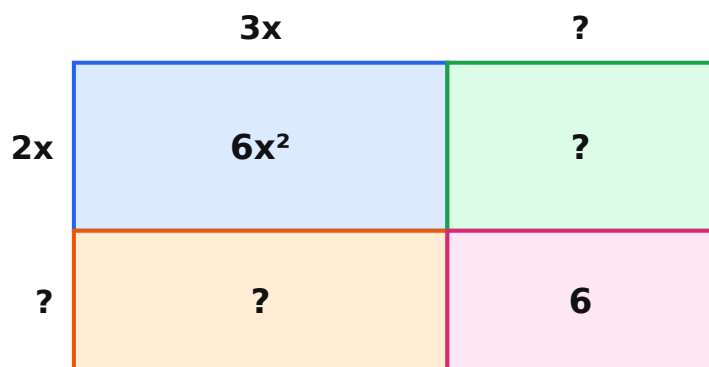
Problem 23: Is it factored completely?

Mei factors $4x^2 - 36$ as $(2x - 6)(2x + 6)$. Explain why this is not complete and write the complete factorization.

Problem 24: Banner dimensions

A banner for the Little League banquet has area $6x^2 + 13x + 6$ square inches. Find binomials for

its length and width.



Complete the model.