Big Ideas Math Algebra 1
Khan Academy alignment guide

Khan Academy alignment guide FAQ

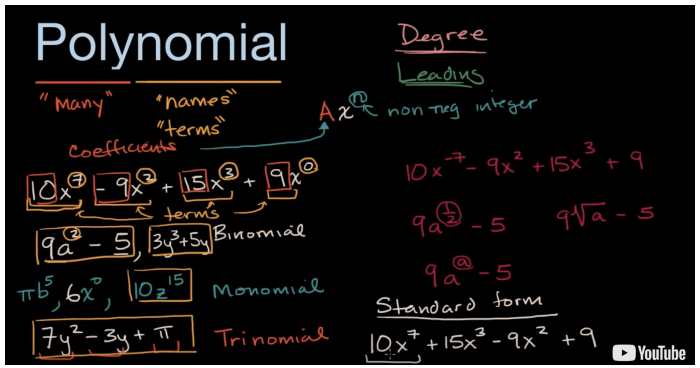
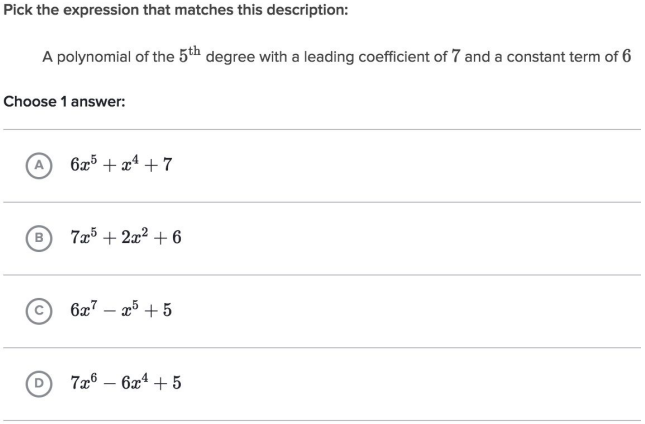
What does this guide contain?

- The purpose of this guide is to make it easier for teachers using the Big Ideas Math Algebra 1 textbook to find best-aligned resources on Khan Academy.
- However, this is not a comprehensive list of all aligned resources. View the full Khan Academy units on polynomials, factorization, and quadratics.

How do exercises work on Khan Academy?

- When teachers assign an exercise on Khan Academy, their students will receive a randomized set of problems from the full item bank for that topic. When they finish the problem set, teachers can view each student's score.
- Students can re-attempt assignments to better understand the concept and improve their performance. When students redo an assignment, they receive a new set of problems, and teachers can view both the total number of attempts and each student's best score on the assignment.

What information does this guide contain?

Textbook section	Videos	Articles	Exercises
7.1 Polynomials This is the chapter and section for the most recent version of Big Ideas Math. If you are using an older edition, exact section numbers may vary.	Polynomial intro (10:48)  This section tells the length of the video and gives a preview of the content covered within the video.	Adding and Subtracting Polynomials Review	Polynomials intro (4 Qs)  (4Qs) indicates that students will receive 4 problems from the full item bank per attempt. The example problem shown is meant to preview the difficulty level of problems within the exercise, but not all students will receive the exact problems shown within this guide.

I found content that I'd like to assign to a class. How do I assign it?

Click the hyperlink and use the toolbar at the top of your screen to select a class, student(s), and due date. Then, click the assign button. *Note: You must have a teacher account on Khan Academy as well as existing classes and students to assign content on Khan Academy.*

Table of Contents

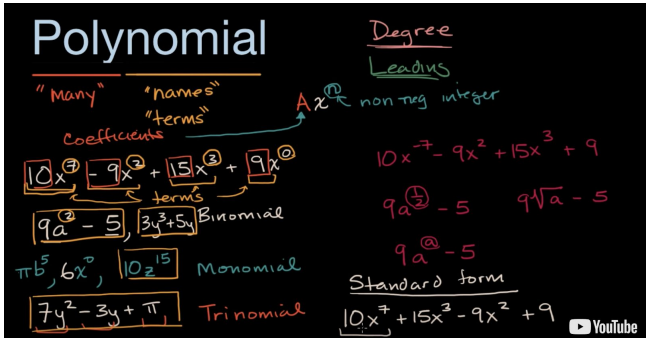
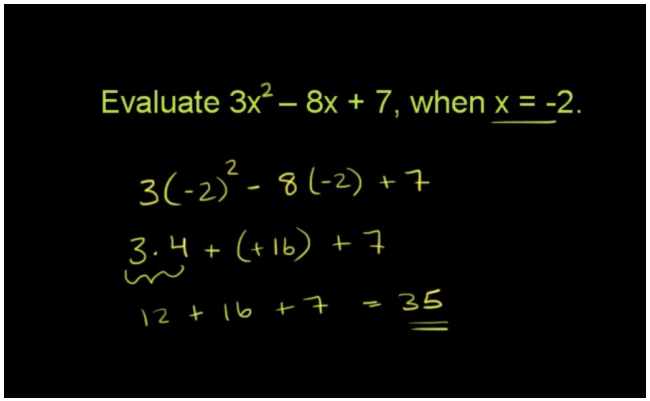
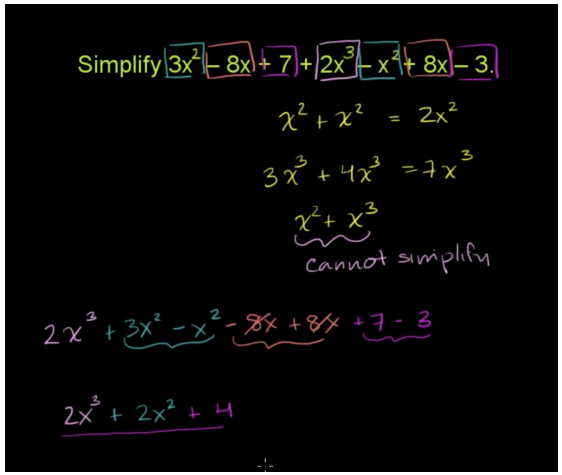
Chapter 7: Polynomial Equations and Factoring

Go here to browse the full unit on polynomials, which includes:

- **36 videos**
- **7 interactive articles**
- **19 problem sets**
- **4 quizzes, plus a unit test**

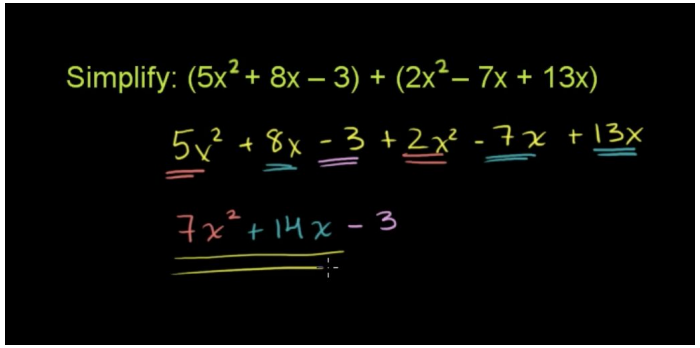
Go here to browse the full unit on factorization, which includes:

- **39 videos**
- **12 interactive articles**
- **16 problem sets**
- **3 quizzes, plus a unit test**

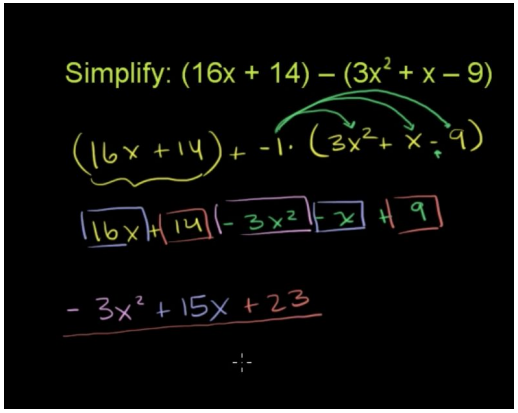
Textbook section	Videos	Articles	Exercises
7.1 Polynomials	Polynomial intro (10:48)  Evaluating polynomials (1:08)  Simplifying polynomials (3:36) 		Polynomials intro (4 Qs) **Pick the expression that matches this description:** A polynomial of the 5^{th} degree with a leading coefficient of 7 and a constant term of 6 **Choose 1 answer:** (A) $6x^5 + x^4 + 7$ (B) $7x^5 + 2x^2 + 6$ (C) $6x^7 - x^5 + 5$ (D) $7x^6 - 6x^4 + 5$

7.2 Adding and Subtracting Polynomials

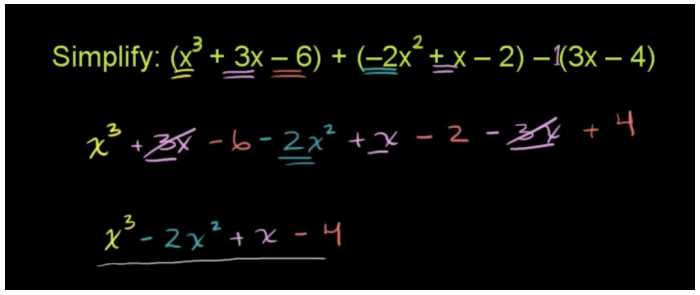
Adding Polynomials (2:00)



Subtracting polynomials (2:01)



Adding and subtracting multiple polynomials (2:26)



Adding and Subtracting Polynomials Review

Add polynomials (intro) (4 Qs)

Add.
Your answer should be a polynomial in standard form.

$(-2k^3 - 7k^2 + 5k) + (6k^2 + 3k) =$ ☐

Subtracting polynomials (4 Qs)

Subtract.
Your answer should be a polynomial in standard form.

$(-5m^2 - 8) - (-3m^2 + m + 2) =$ ☐

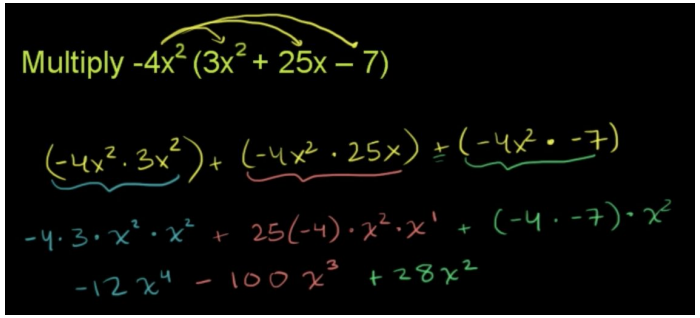
Add & subtract polynomials (4 Qs)

Subtract $3x^2 + 7x - 4$ from $8x^2 - 6x + 2$.
Your answer should be a polynomial in standard form.

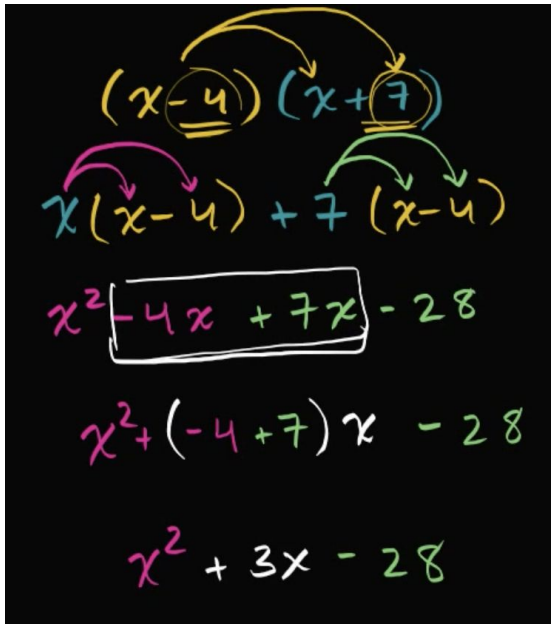
☐

Section 7.3 Multiplying Polynomials

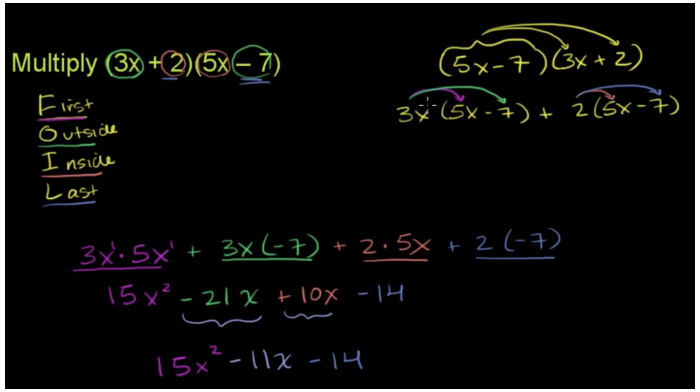
Multiplying monomials by polynomials (2:42)



Multiplying binomials intro (4:46)



Multiplying binomials (5:47)



Multiplying monomials by polynomials review

Multiply monomials by polynomials (4 Qs)

Expand.
Your answer should be a polynomial in standard form.

$-4w(w^2 - 9) =$ ☐

Multiplying binomials intro (4 Qs)

Expand.
Your answer should be a polynomial in standard form.

$(x+1)(x+8) =$ ☐

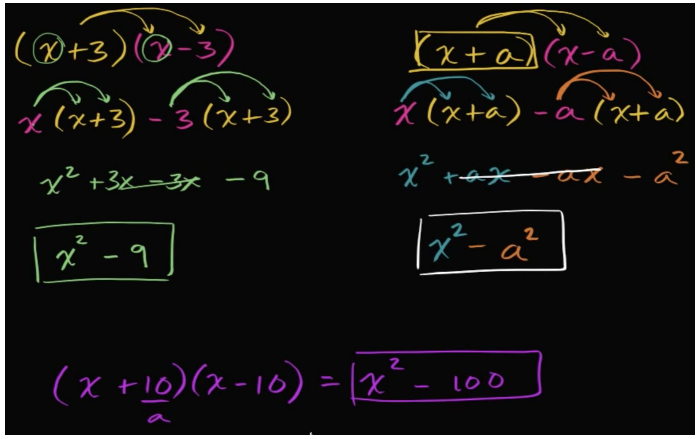
Multiply binomials (4 Qs)

Expand.
Your answer should be a polynomial in standard form.

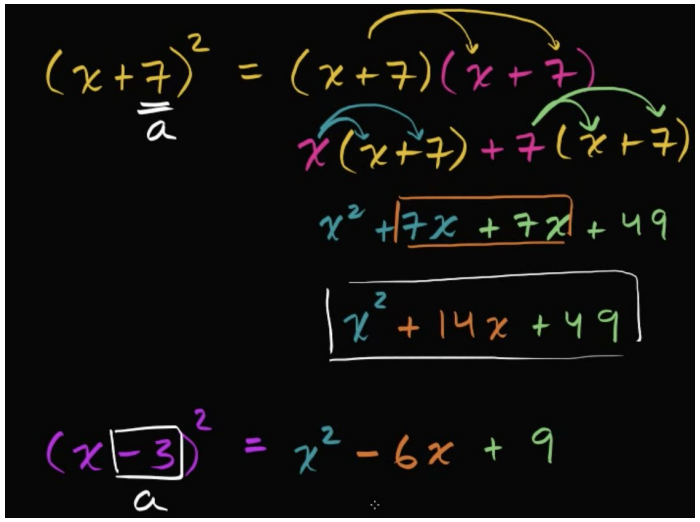
$(3b-4)(b+2) =$ ☐

Section 7.4 Special Products of Polynomials

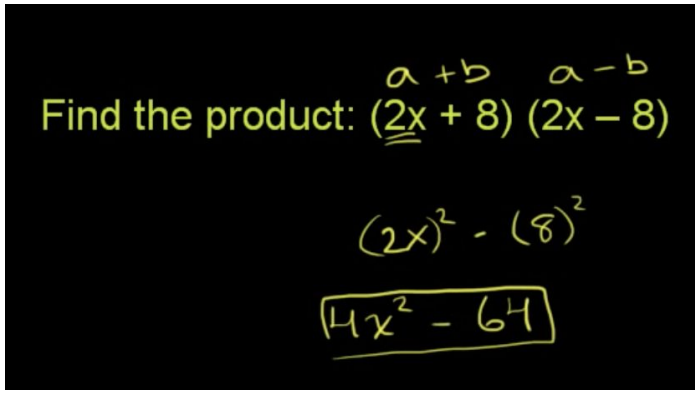
Special products of the form (x+a)(x-a) (4:53)



Squaring binomials of the form (x+a)² (5:42)



Special products of the form (ax+b)(ax-b) (2:29)



Special products of binomials intro (4 Qs)

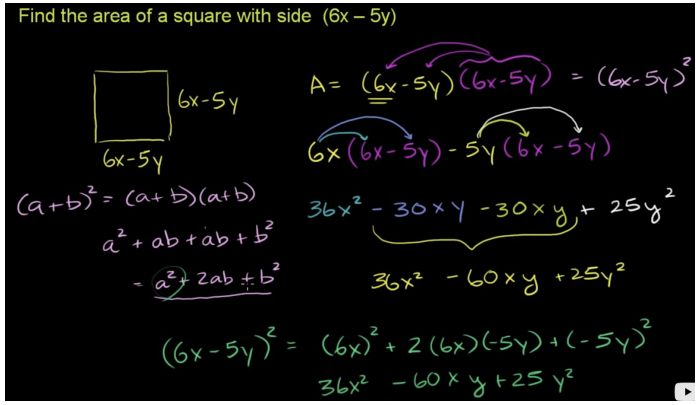
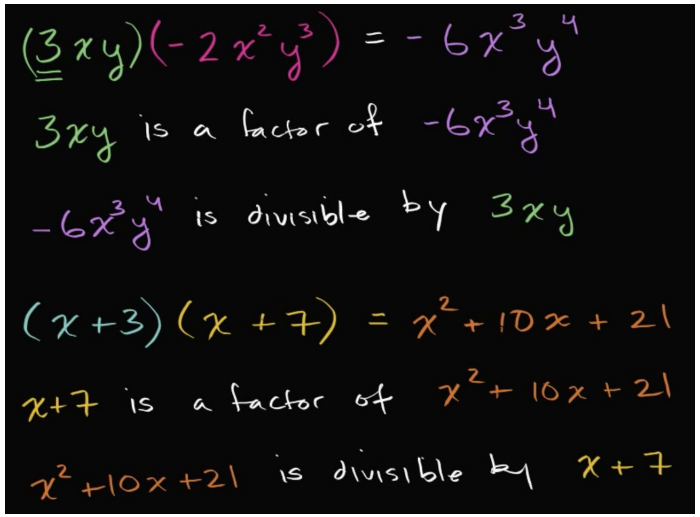
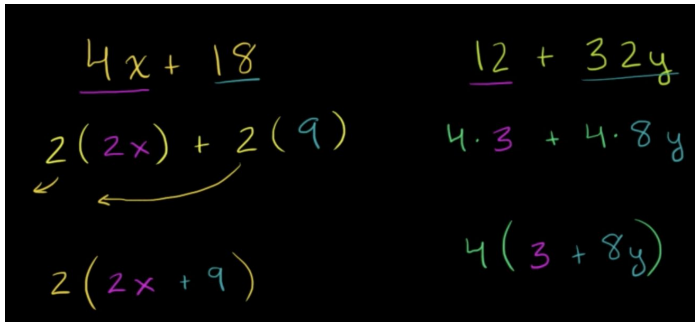
Expand.
Your answer should be a polynomial in standard form.

$(x+6)(x+6) =$ ☐

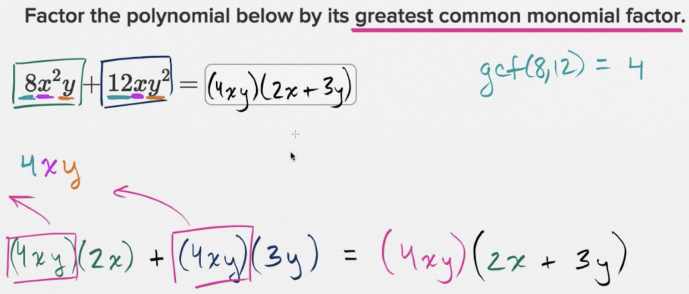
Special products of binomials (4 Qs)

Expand.
Your answer should be a polynomial in standard form.

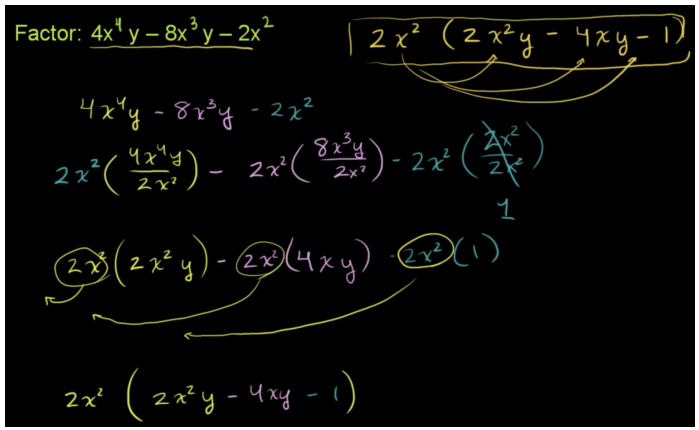
$(3r+5t)^2 =$ ☐

	Special products of binomials: two variables (5:11) 	Binomial special products review	
Section 7.5 Solving Polynomial Equations in Factored Form ***and*** **Section 7.6** Factoring Polynomials using the GCF	Intro to factors & divisibility (5:25)  Factoring with the distributive property (3:27) 	Intro to factors & divisibility	Factors & divisibility (4 Qs) A teacher writes the following product on the board: $(3k^2)(6k^5) = 18k^7$ Ana says that $3k^2$ is a factor of $18k^7$. Felipe says that $18k^7$ is divisible by $3k^2$. **Who is correct?**

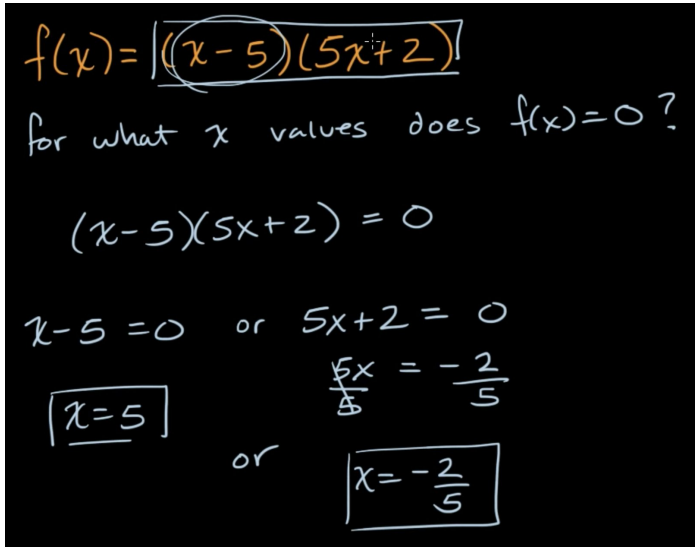
Factoring binomials: common factor (4:58)



Factoring polynomials: common factor (5:53)



Zero product property (7:16)



Factoring polynomials by taking a common factor

Factoring polynomials by common factor review

Factor polynomials: common factor (4 Qs)

Factor the polynomial as the product of two binomials.

$n(n-1) + 3(n-1) =$ ☐

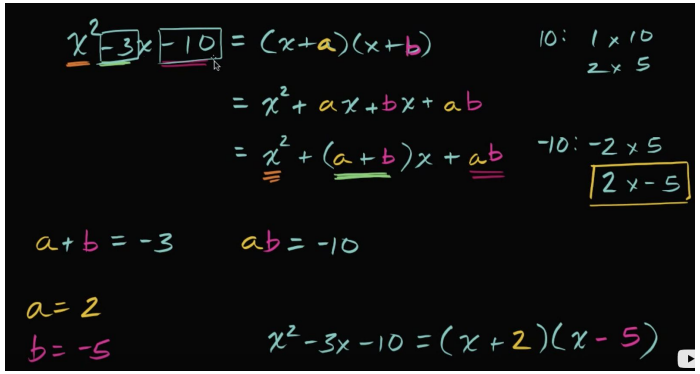
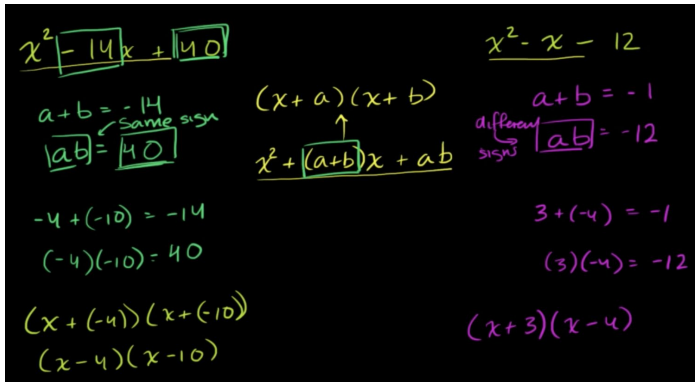
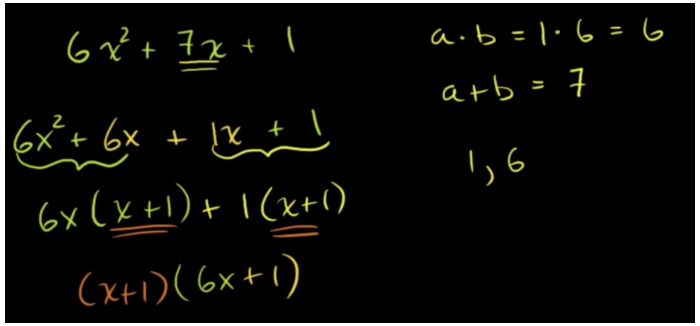
Zero product property (4 Qs)

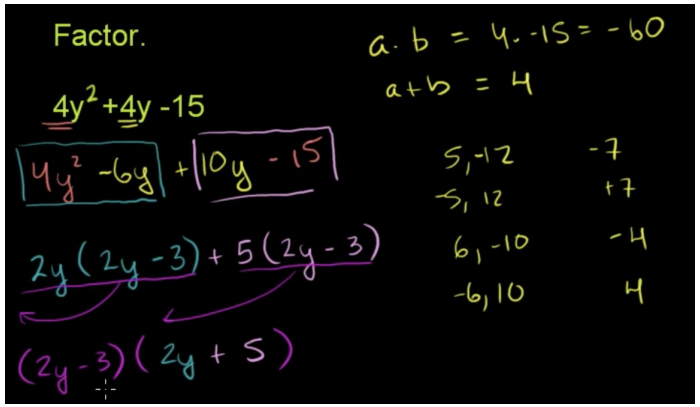
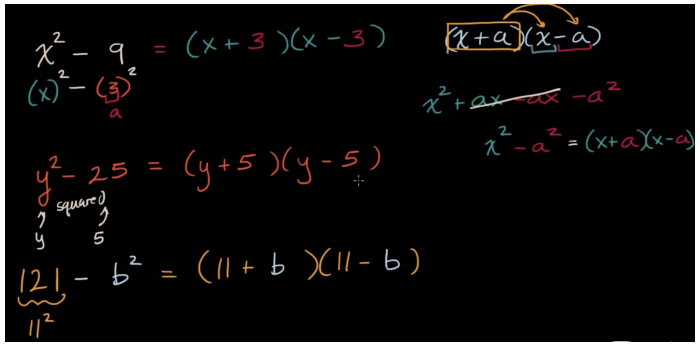
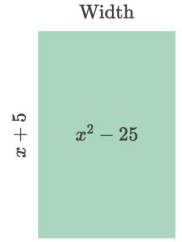
Find the zeros of the function.
Write the smaller solution first, and the larger solution second.

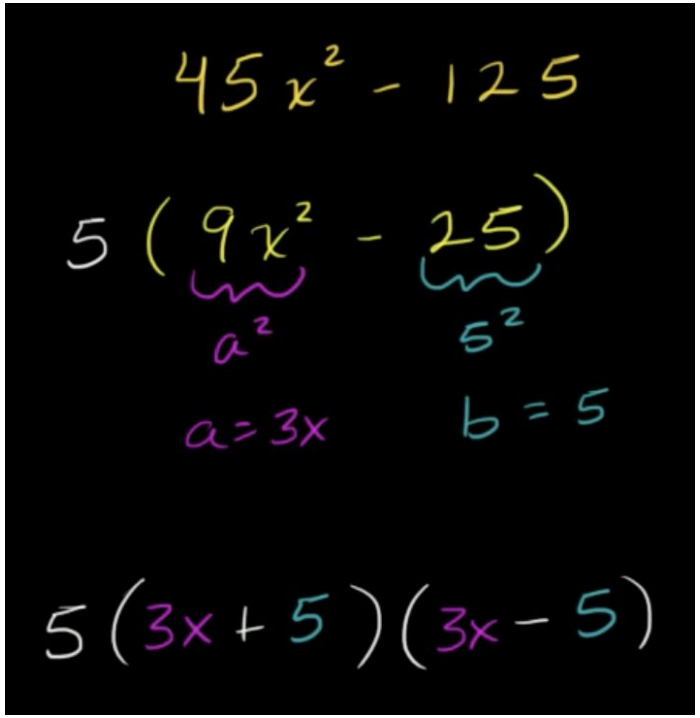
$f(x) = (x-5)(5x+2)$

smaller $x =$ ☐

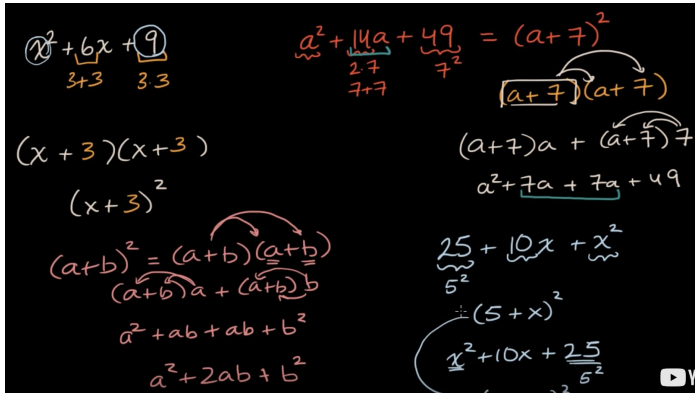
larger $x =$ ☐

Section 7.7 **Factoring x^2+bx+c**	[Factoring quadratics as (x+a)(x+b)](#) (6:33)  [Factoring quadratics as (x+a)(x+b)(example 2)](#) (4:20)  	[Factoring quadratics: leading coefficient = 1](#) [Factoring simple quadratics review](#)	[Factoring quadratics intro](#) (4 Qs) **Factor as the product of two binomials.** $x^2-10x+21=$ ☐
Section 7.8 **Factoring ax^2+bx+c**	[Intro to grouping](#) (13:57)  	[Factoring by grouping](#)	

	Factoring quadratics by grouping (3:55) 	Factoring quadratics: leading coefficient ≠ 1	Factor quadratics by grouping (4 Qs) **Factor the quadratic expression completely.** $2x^2 - 13x + 20 =$
Section 7.9 Factoring Special Products	Difference of squares intro (4:54)  Factoring difference of squares: leading coefficient ≠ 1 (2:22)	Factoring quadratics: Difference of squares	Difference of squares intro (4 Qs) The rectangle below has an area of $x^2 - 25$ square meters and a length of $x + 5$ meters. **What expression represents the width of the rectangle?**  Width = meters Difference of squares (4 Qs)



[Perfect square factorization intro](#) (5:18)



[Factoring perfect squares](#) (4:53)

[Factoring quadratics: Perfect squares](#)

Factor completely.

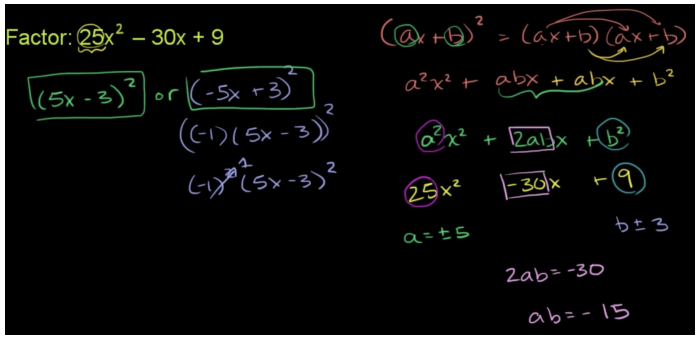
$4x^2 - 1 =$ ☐

[Perfects squares intro](#) (4 Qs)

Factor as the product of two binomials.

$36 + 12x + x^2 =$ ☐

[Perfect squares](#) (4 Qs)

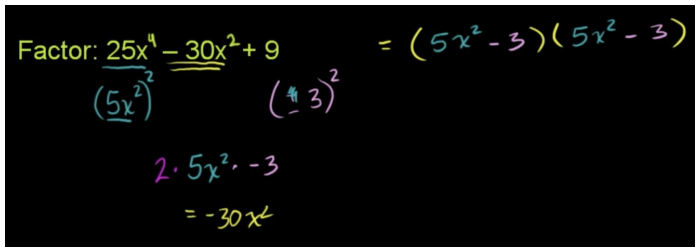


[Factoring quadratics in any form]

Factor completely.

$$25x^2 - 30x + 9 =$$

[Factoring perfect squares: 4th degree polynomial] (2:24)



[Factor polynomials: special product forms] (4 Qs)

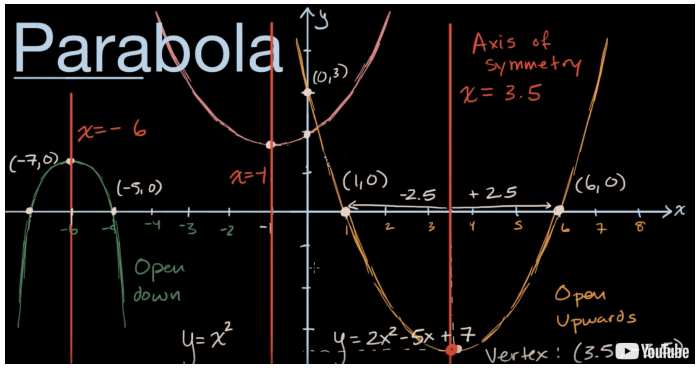
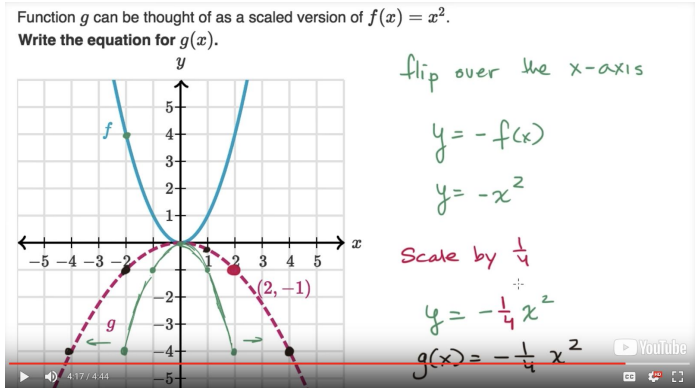
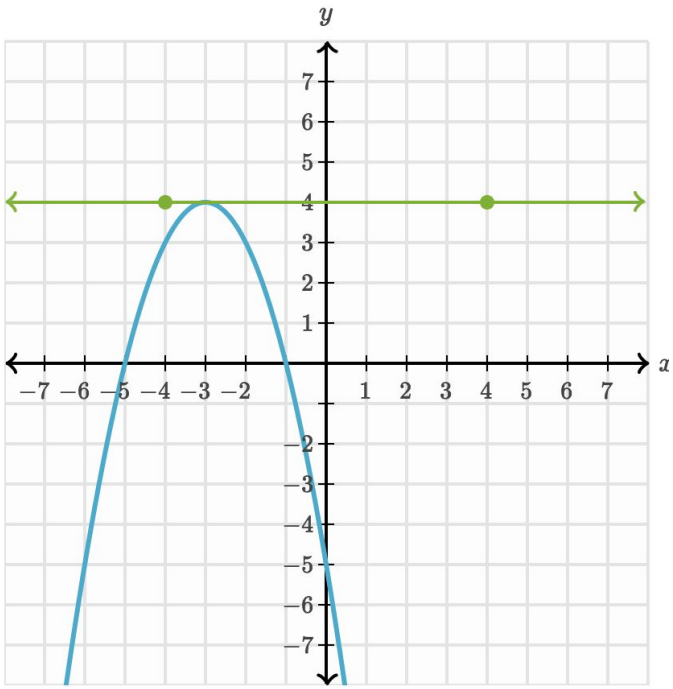
Factor completely.

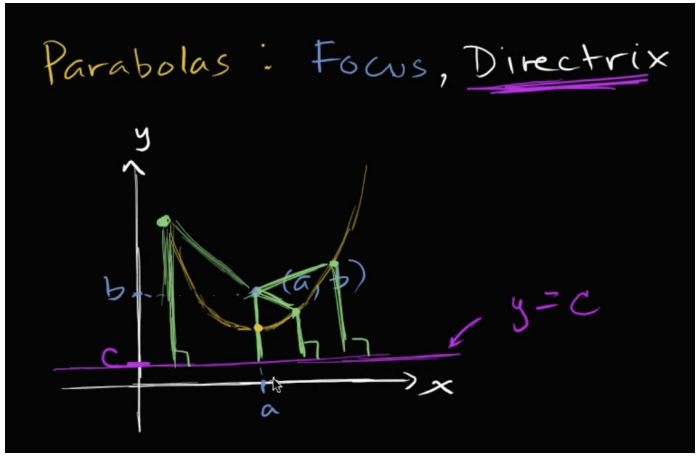
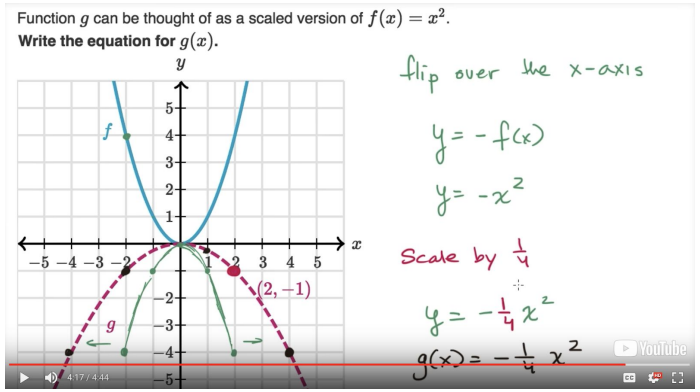
$$49m^4 + 140m^2 + 100 =$$

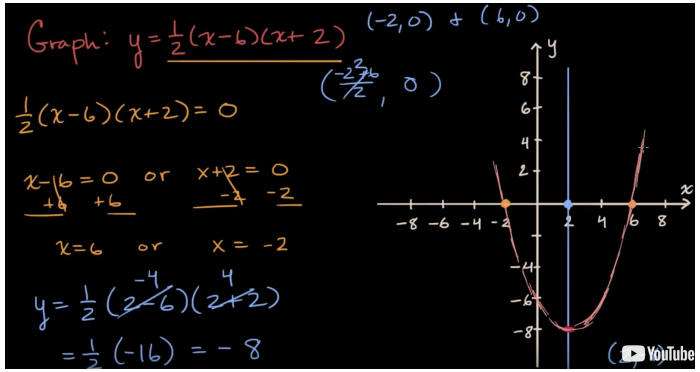
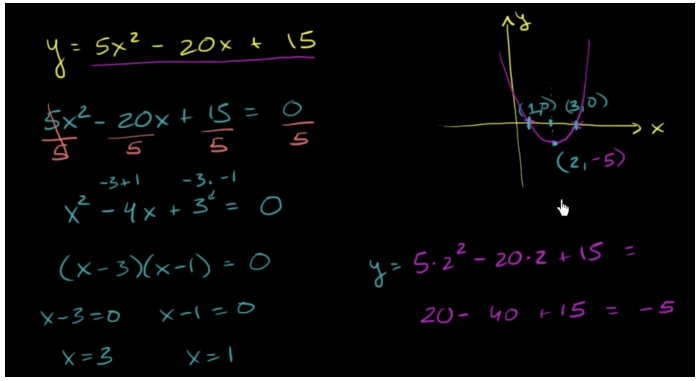
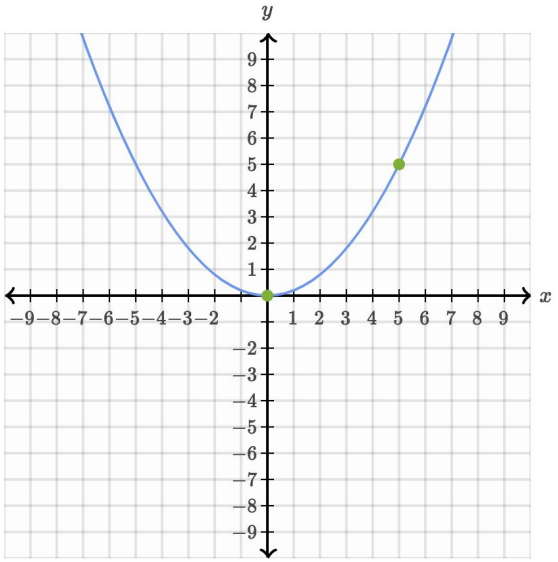
Chapter 8: Graphing Quadratic Functions

Go here to browse the full unit on quadratic functions, which includes:

- **41 videos**
- **11 interactive articles**
- **29 problem sets**
- **5 quizzes**
- **1 unit test**

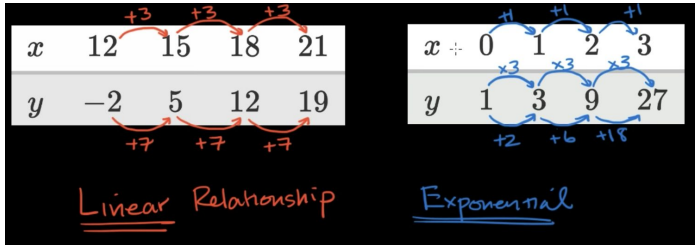
Textbook section	Videos	Articles	Exercises
8.1 **Graphing y = ax²**	Parabolas intro (8:13)  Scaling and reflecting parabolas (4:44)  		[Background] Parabolas intro (7 Qs) Draw the parabola's axis of symmetry.  Scale and reflect parabolas (4 Qs) The parabola $y = x^2$ is scaled vertically by a factor of 7. **What is the equation of the new parabola?** $y =$

8.2 **Focus of a Parabola**	*No videos are perfectly aligned at this time.* Related resource: Intro to focus and directrix (4:06) [Algebra II video]  	*No articles perfectly aligned at this time.* Related resource: Parabola focus & directrix review [Algebra II article]	*No exercises perfectly aligned at this time.* Related resource: Equation of a parabola from focus & directrix (4 Qs) [Algebra II exercise] Write the equation for a parabola with a focus at $(6, -4)$ and a directrix at $y = -7$. $y =$
8.3 **Graphing y = ax²+c**	*No videos perfectly aligned at this time.* Related resource: Scaling and reflecting parabolas (4:44)  	*No articles perfectly aligned at this time.* *Browse the full unit.*	*No exercises perfectly aligned at this time.* Related resource: Scale and reflect parabolas (4 Qs) The parabola $y = x^2$ is scaled vertically by a factor of 7. **What is the equation of the new parabola?** $y =$ Related resource: Warmup: graphing quadratics in factored form (4 Qs)

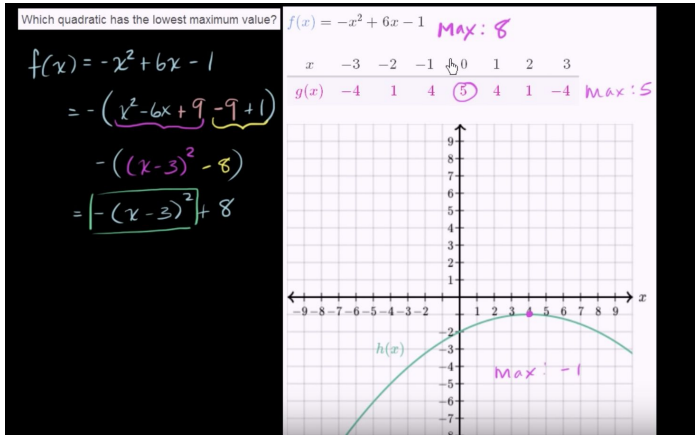
	Related resource: Graphing quadratics in factored form (6:02) 		$y=(x-5)(x+1)$ **What is the vertex of the parabola?** (,)
8.4 Graphing y = ax^2+bx+c	Graph quadratics: standard form (4:40) 		Graph equations in standard form (4 Qs) Graph the equation. $y=4x^2+8x+7$ 

8.5 Comparing Linear, Exponential, and Quadratic Functions

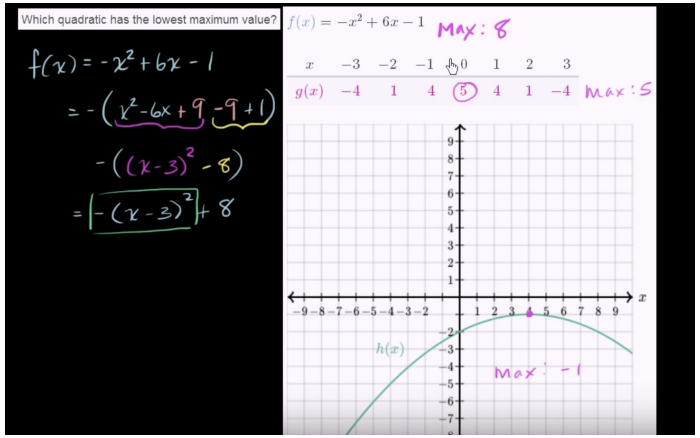
Related resource: Exponential vs. linear models (3:04)



Comparing maximum points of quadratic functions (3:58)



Comparing functions: x-intercepts (2:46)



No articles are perfectly aligned at this time. Browse the full unit.

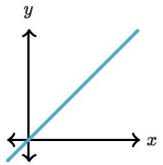
Related resource: Exponential vs. linear models (4 Qs)

You work as a taxi driver. You earn an average of $75 in tips every day.

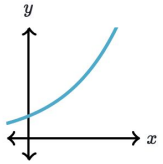
Which graph best represents the relationship between time and the cumulative total of your tips?

Choose 1 answer:

(A)



(B)



Related resource: Compare features of functions (4 Qs) [Algebra II skill, challenging]

f is a function defined on all real numbers. Its formula is given below.

g is a function defined on all real numbers. Its graph when $-10 \le x \le 10$ is given below.

Which of the features are shared by $f(x)$ and $g(x)$?

Choose all answers that apply:

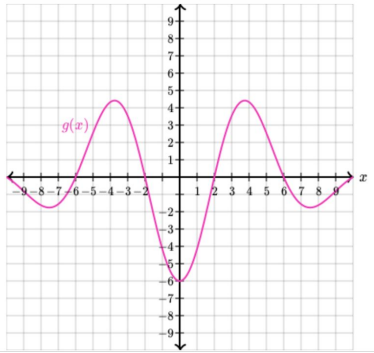
(A) They are both periodic.

(B) They are both even.

(C) They have at least one x-intercept in common.

(D) They have a relative minimum at the same x value.

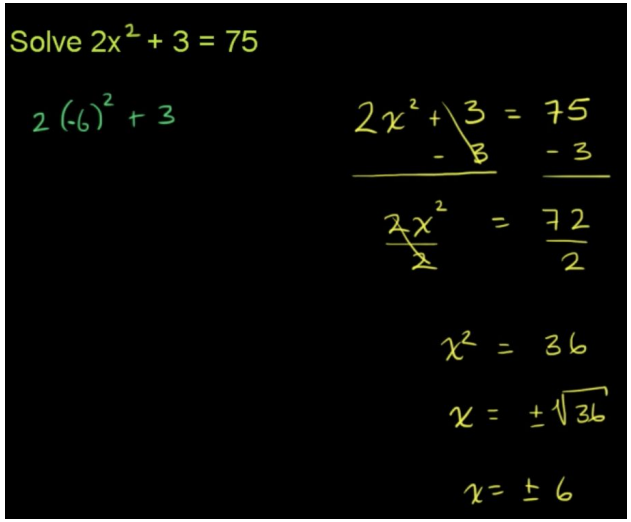
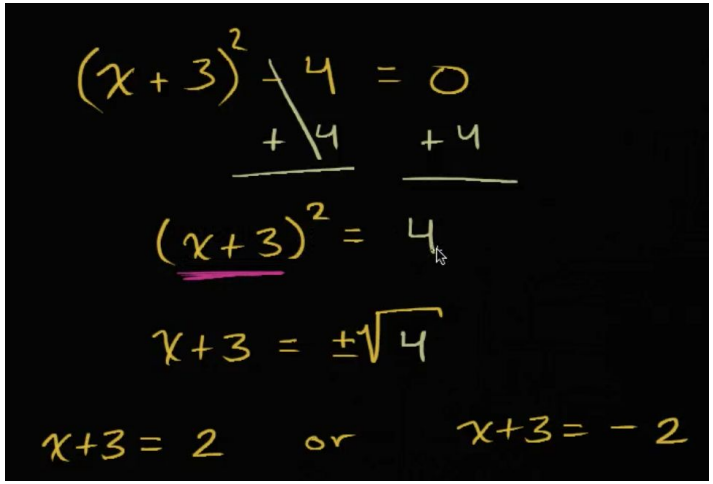
$f(x) = x^2 - 4$



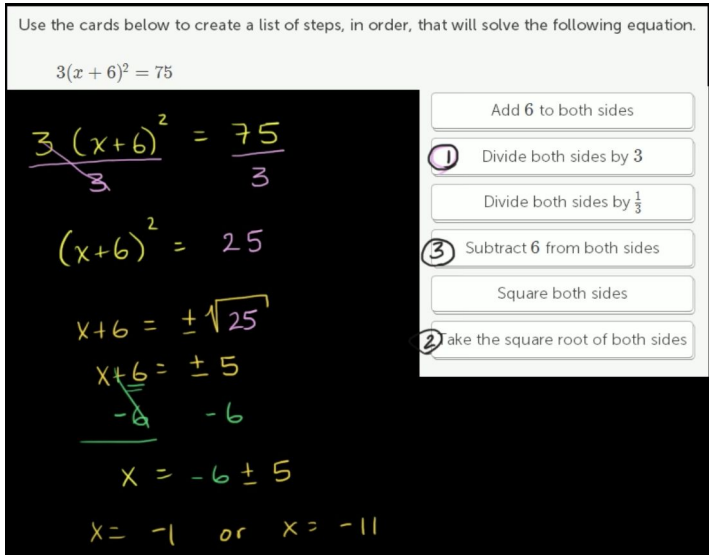
Chapter 9: Solving Quadratic Functions

Go here to browse the full unit on quadratic functions, which includes:

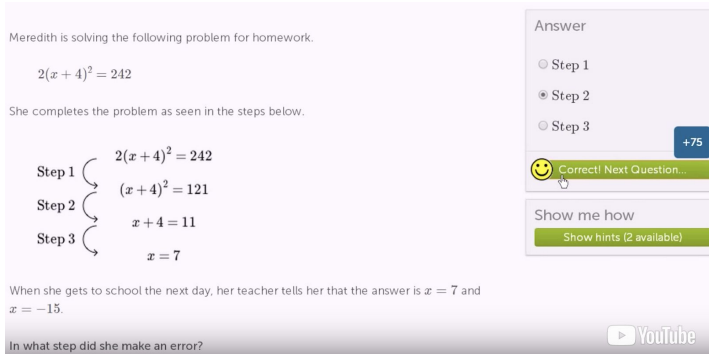
- **41 videos**
- **11 interactive articles**
- **29 problem sets**
- **5 quizzes**
- **1 unit test**

Textbook section	Videos	Articles	Exercises
9.1 Solving Quadratic Equations by Graphing	*No videos are perfectly aligned at this time. Browse the full unit.*	*No articles perfectly aligned at this time. Browse the full unit.*	*No exercises are perfectly aligned at this time. Browse the full unit.*
9.2 Solving Quadratic Equations using Square Roots	Solving quadratics by taking square roots (2:18)  Solving quadratics by taking square roots examples (5:11) 	Solving quadratics by taking square roots Solving simple quadratics review	Quadratics by taking square roots intro (4 Qs) **Solve for x.** *Write the smaller solution first, and the larger solution second.* $3x^2 + 4 = 436$ smaller $x =$ ☐ larger $x =$ ☐ Quadratics by taking square roots (4 Qs) **Solve for x. Write the smaller solution first, and the larger solution second.** $(x+7)^2 - 49 = 0$ smaller $x =$ ☐ larger $x =$ ☐

Solving quadratics by taking square roots: strategy (4:24)



Solving quadratics by taking square roots: with steps (1:44)



Quadratics by taking square roots: strategy (4 Qs)

Seth solved a quadratic equation. His work is shown below, with Step 3 missing.

What could Seth have written as the result from Step 3?

$\frac{1}{2}(x-1)^2 + 5 = 23$

$\frac{1}{2}(x-1)^2 = 18$ Step 1

$(x-1)^2 = 36$ Step 2

Step 3

$x = -5$ or $x = 7$ Step 4

Choose 1 answer:

Quadratics by taking square roots: with steps (4 Qs)

Create a list of steps, in order, that will solve the following equation.

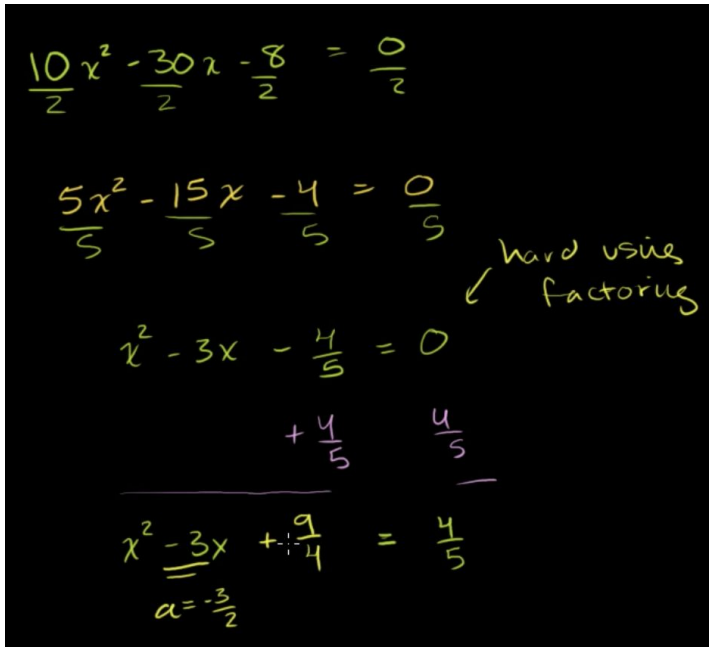
$3(x+1)^2 = 108$

Solution steps:

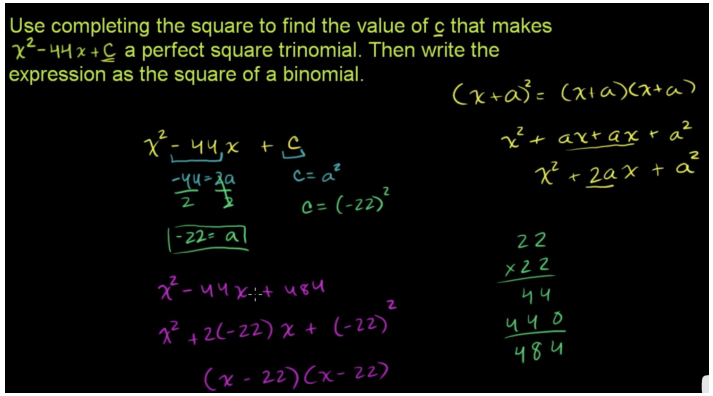
- Add 1 to both sides
- Divide both sides by 3
- Multiply both sides by 3
- Subtract 1 from both sides
- Square both sides
- Take the square root of both sides

9.3 Solving Quadratic Equations by Completing the Square

Completing the square (14:06)



Worked example: Completing the square (intro) (3:21)



Solving quadratics by completing the square

Completing the square (intro) (4 Qs)

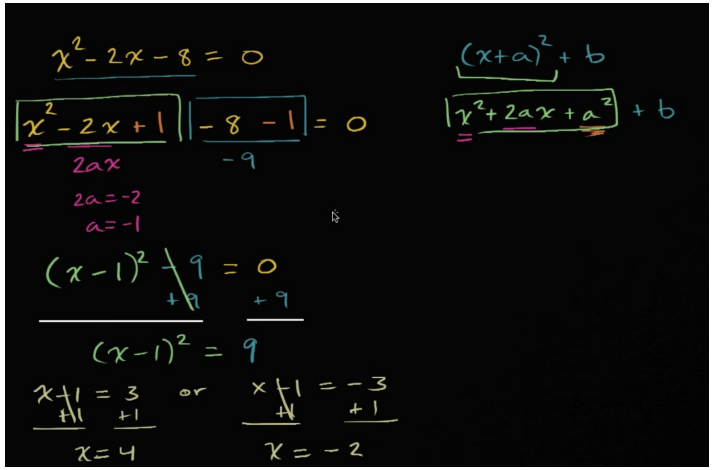
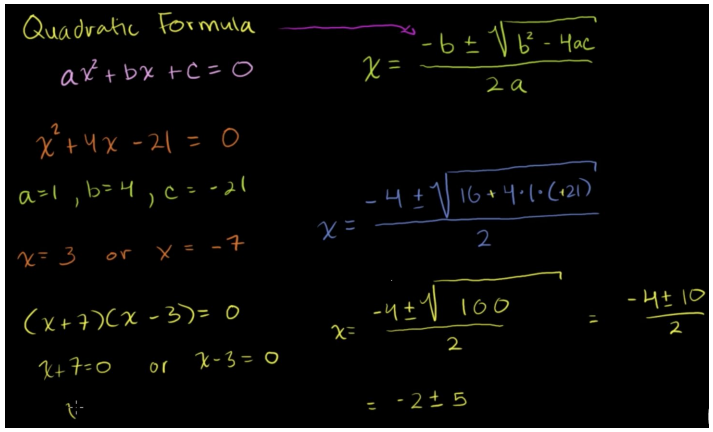
What is the missing constant term in the perfect square that starts with $x^2 + 14x$?

Completing the square (intermediate) (4 Qs)

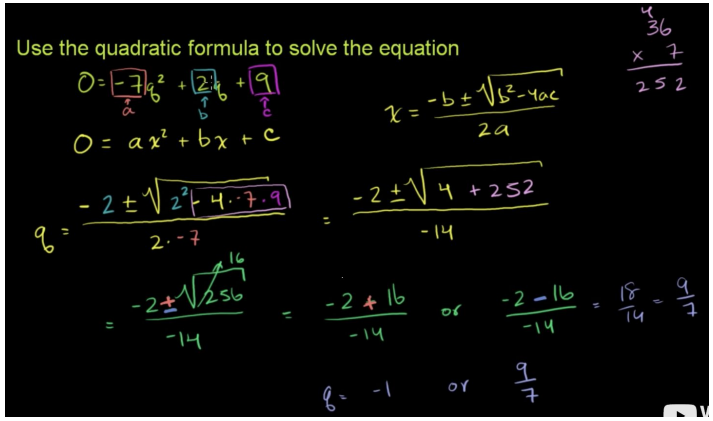
Rewrite the equation by completing the square.

$x^2 + 16x + 64 = 0$

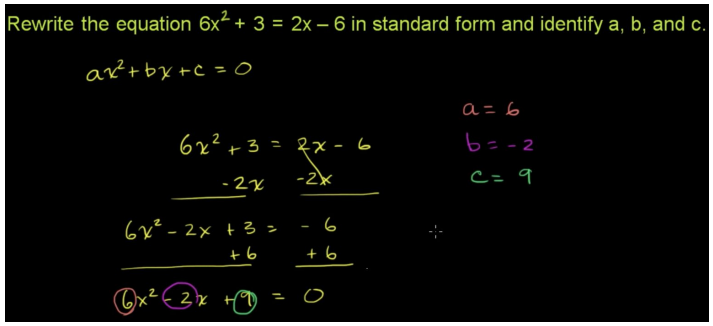
$(x + \square)^2 = \square$

	[Worked example: Solving equations by completing the square](#) (6:19) 	[Completing the square review](#)	[Completing the square](#) (4 Qs) **Rewrite the equation by completing the square.** $4x^2+28x+49=0$ $(x+\square)^2=\square$
9.4 Solving Quadratic Equations using the Quadratic Formula	[The quadratic formula](#) (16:31) 	[Understanding the quadratic formula](#) [Quadratic formula review](#) [Discriminant review](#)	[Quadratic formula](#) (4 Qs) **Solve.** $10x^2-6=9x$ **Choose 1 answer:** (A) $x=\frac{5\pm\sqrt{65}}{-2}$ (B) $x=\frac{9\pm\sqrt{321}}{20}$ (C) $x=\frac{4\pm\sqrt{26}}{10}$ (D) $x=\frac{-1\pm\sqrt{109}}{18}$

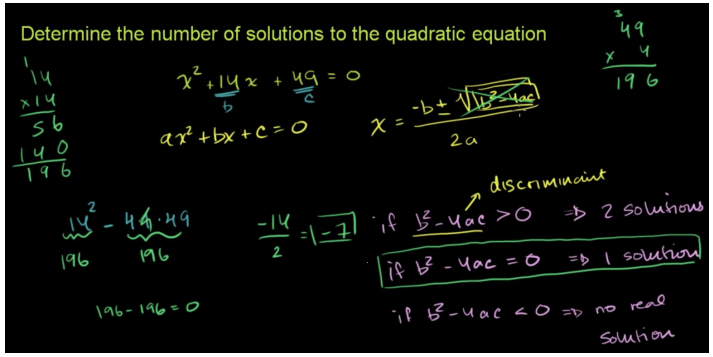
[Using the quadratic formula](#) (5:34)



[Worked example: quadratic formula](#) (2:21)



[Using the quadratic formula: number of solutions](#) (4:58)

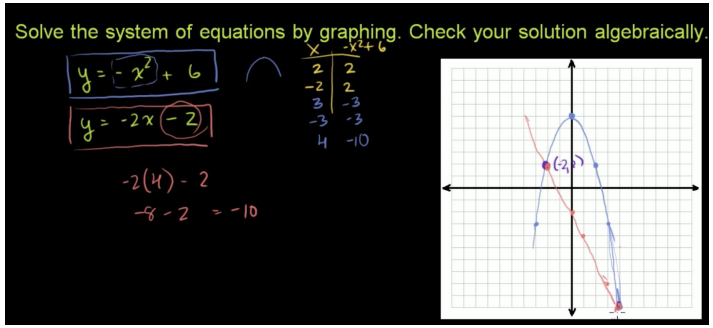


[Number of solutions of quadratic equations](#) (4 Qs)

$$f(x) = -4x^2 + 12x - 9$$

What is the value of the discriminant of f?

How many x-intercepts does the graph of f have?

9.5 Solving Systems of Linear and Quadratic Equations	Quadratic systems: graphical solution (5:43) 	*No articles perfectly aligned at this time. Browse the full unit.*	*No exercises perfectly aligned at this time. Browse the full unit.*