

LEVEL 4:

Variables and Terms: Combine Like Terms (Linear) has a Tool operating in 3 modes generating 3, 5 and 7 terms to simplify..

Exponential Terms operates in two modes and has an example explaining how to combine and simplify terms.

Zevy Inventory Activity, Students assign terms to an inventory of cars and apply one days activity, print a sheet for each student.

LEVEL 5:

Linear Equations: has a Tool operating in three modes. The tool shows detailed step-by-step solutions for all equations.

Examples of the Distributive, Identity and Equality properties are presented and necessary to solve equations.

Fractional Equations is an extension of the linear equations tool with more complex equations and detailed solutions.

Bivariate Equations tool operates in two modes and has a graphic explaining and Elimination Technique and a Substitution Technique to solve for X and Y.

LEVEL 6:

Quadratic Equations: Features a Tool operating in two modes when $A=1$ and $A>1$. All equations may be factored and solved.

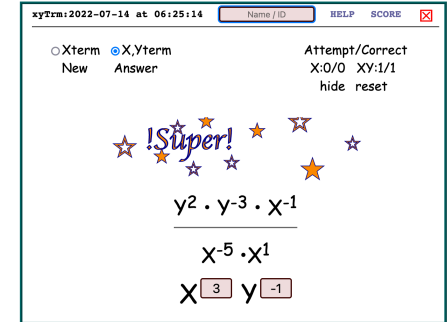
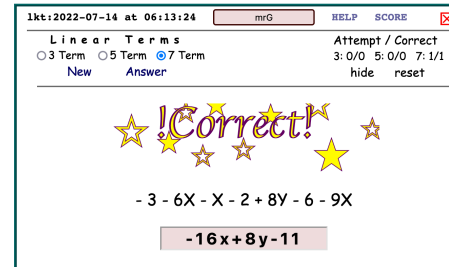
A series of Examples associate the algebraic elements of equations with graphical elements of parabolas.

A Drop Rock Activity adds context to the quadratics by first solving into a perfect square. Then discussing transitions of the A, B, C, coefficients and Completing the Square to Solve for X.

Use the Quadratic Equation to Solve for X when $A=1$ and $A>1$.

COMBINE LIKE TERMS

Algebra begins with combine like terms featuring a tool for linear terms and one for exponential terms, both tools increase in difficulty show solutions and keep scores. Students may



begin learning about linear terms in Level/1.

Variables and Terms contains an Invisible Math Graphic important for reading and writing

ZEVY INVENTORY ACTIVITY

Print Activity Page
 (Landscape, Duplex, Flip Short Side)

ZEVY SELLS
 Zorvetts → Z and Zameros → M
 Each car comes standard or may have upgrade(s)
 Upgrades: (8)V-8 engine; (L)Leather Interior

Write All 8 Inventory Items

CODE	DESCRIPTION
Z	Zorvette
Z(L)	Zorvette Leather Interior
Z(8)	Zorvette V8 Engine
Z(L)(8)	Zorvette Leather Interior and V8 Engine
M	Zamero
M(L)	Zamero Leather Interior
M(8)	Zamero V8 Engine
M(L)(8)	Zamero Leather Interior and V8 Engine

Code Starting Inventory

zevy(1) : Close This Window

algebra. An Inventory Activity uses the Fictitious Zevy Motor Company to have students assign codes to an inventory of cars then apply starting quantities and one days activity.print an activity sheet for each student, solutions animate online.

LINEAR EQUATIONS

agql:2022-03-31 at 12:08:49 HELP SCORE mrG

Attempt / Correct
E:3/3 M:2/2 H:1/1
reset hide

Easy Med Hard
New Answer

!Super!

$$2(6X - 12) = -8$$

$$X = \frac{1}{3}$$

Step-by-Step Solution Full Solution

$$2(6X - 12) = -8$$

Distribute the 2

$$12X - 24 = -8$$

Add 24, both sides

$$12X = 16$$

Divide by 12

$$X = 16 / 12$$

Simplify

$$X = 1 \frac{1}{3}$$

The Linear equations tool operates in Easy Medium and Hard modes generating more complex equations as shown Step by Step solutions animate for all equations showing individual operations great for practice, study and learning.

agdq:2022-02-21 at 10:32:33 HELP SCORE MrG

Attempt / Correct
2 / 2
hide reset

New Answer

Fractional Equations

$$-\frac{3}{5}(\frac{1}{2}X + 4) = 2$$

$$X = \frac{-44}{3}$$

Great Job!

Step-by-Step Solution Full Solution

Distribution first

$$-\frac{3}{5}(\frac{1}{2}X + 4) = 2$$

Combine constants Simplify constants

$$-\frac{3}{10}X - \frac{12}{5} = 2$$

Simplify the X term Rewrite equation

$$-\frac{3}{10}X = \frac{10}{5} + \frac{12}{5} = \frac{22}{5}$$

$$X = \frac{220}{-15} = \frac{-44}{3}$$

A Fractional Equations tool generates more complex equations. showing detailed step-by-step solutions it is great for assessing student skills.

agxy:2022-05-21 at 06:44:00 Name / ID HELP SCORE

Attempt / Correct
E:0/0 H:1/0
reset hide

Easy Hard
New Answer

Correct answer is: X=-4; Y=-3;

$$-2x - 3y = 17$$

$$5x + 2y = -26$$

$$x = \quad y = \quad$$

A Bivariate equations tool operates in two modes generating equations with X and Y variables. A help graphic shows an elimination technique to first solve for one variable then a substitution technique to solve for the other.

QUADRATIC EQUATIONS

The Quadratic Equation Section has its own Overview Video and Booklet. Below are some of the highlights of this section.

Q2too1 : 24/12/05 13:01:14 HELP SCORE Name / ID

Attempt / Correct
E:0/0 H:0/0
Reset Hide

A=1 A>1
New Answer

$$x^2 + 3x - 10 = 0$$

$$X = \quad \text{or } X = \quad$$

A tool generates quadratic equations with A = 1 in Easy mode and A > 1 in Hard Mode.

Q2:2022-07-14 at 08:54:03 Name / ID HELP SCORE

Attempt / Correct
E:0/0 H:1/0
Reset Hide

A=1 A>1
New Answer

Incorrect See Solution Below

$$5x^2 - 2x - 3 = 0$$

$$X = \frac{-3}{5} \text{ or } X = \frac{1}{5}$$

Detailed Solution

When A is not equal to 1 we use slide and divide to simplify

$$x^2 - 2x - 15 = 0 \quad C=A \cdot C \quad A=1; \text{ divide by 5 later}$$

New Equation

$$x^2 - 2x - 15 = 0$$

Factors Into

$$(x+3)(x-5) = 0$$

Divide both constants by 5, from above

An Example details the F.O.I.L. method of factoring when A=1 and another details the Slide and Divide technique when A>1. The tool generates detailed solutions for all equations.

Quadratic Equations are Parabolas
Example Parabolas

Hover A, B and C below to see Transitions

$$y = Ax^2 + Bx + C$$

Parabola Terms and Definitions

- Graphical examples show many parts of parabolas including:
- Points
 - Vertex
 - Roots
 - Axis of Symmetry
 - Standard Equations

$y = Ax^2 + Bx + C$
X = Time → How long it takes to hit ground → Solve for X

First Second Third

Let Y=0 the ground and C=Height of the Building. We may choose any building to, "Drop the Rock", so let's use the Joint Venture TV Building in Bithlo Florida, which is 490 meters tall → C = +490

B=0 Let's just drop the rock, not throw it

A = -4.9 → A is Negative because gravity pulls down ↓ recall from physical science: Distance=(1/2)(Acceleration)(Time²) and Gravity or acceleration is 9.8 and half of that is 4.9

Plug in Numbers and Solve for X (Time)

$$0 = -4.9X^2 + 0X + 490$$

$$4.9X^2 = 490$$

$$X^2 = 100$$

X = 10 Seconds

Transitions of A, B and C Reset

A Drop Rock Activity is a series of examples resulting in Perfect Square Equations, and then discusses the effects of transitioning the A, B and C coefficients requiring completing the square and the quadratic equation to solve. Please see the Quadratic Equations Overviews of full details