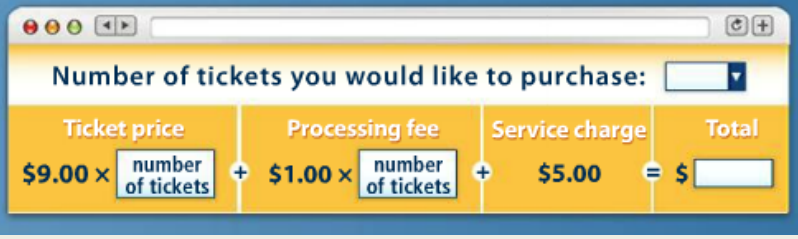
Algebra 1

Chapter 2
Section 2-3

Multi-Step Equations

You are buying movie tickets online for a group of your friends. You have to enter the number of tickets you want on the screen shown. You are using a debit card to pay for the tickets and have a total of $45 to spend. How many tickets can you buy? Explain your answer.



$9.00x + 1.00x + 5.00 = 45.00$

$10.00x + 5.00 = 45.00$

$10.00x = 40.00$

$x = 4$ tickets

Like Terms in Multi-Step Equations

$11w - 4 - 4w = 10$

$7x + 2x - 9 = 81$

$13 + 2g + 4 = 5$

$25k - k = 48$

Example

Jack buys a pillow pet from an online store. Shipping and handling costs were $10. Sales tax and fees totaled 10 cents per dollar. In total, he spent $54.00. What was the original cost of the pillow pet?

$x + .10x + 10 = 43$

$1.10x + 10 = 43$

$1.10x = 33$

$x = 30$

Solving Equations with Distributive Property

$6(5 - x) = 18$

$30 - 6x = 18$

$-6x = -12$

$x = 2$

$5(2x + 1) = 75$

$10x + 5 = 75$

$10x = 70$

$x = 7$

Solving Equations with Multiple Fractions

$\frac{2x}{5} - \frac{3x}{10} = 2$

$\frac{4x}{10} - \frac{3x}{10} = 2$

$\frac{x}{10} = 2$

$x = 20$

$\frac{2x}{7} + \frac{3x}{2} = \frac{5}{2}$

$\frac{4x}{14} + \frac{21x}{14} = \frac{5}{2}$

$\frac{25x}{14} = \frac{5}{2}$

$25x = \frac{70}{2} = 35$

$x = \frac{35}{25} = \frac{7}{5}$

$\frac{3x}{5} + \frac{x}{3} = 2$

$\frac{9x}{15} + \frac{5x}{15} = 2$

$\frac{14x}{15} = 2$

$14x = 30$

$x = \frac{30}{14} = \frac{15}{7}$

Multiple Fractions (Method 2)

$\frac{x}{7} + \frac{4x}{21} = \frac{1}{3}$	$\frac{x}{7} + \frac{4x}{21} = \frac{1}{3}$
$21\left(\frac{x}{7} + \frac{4x}{21}\right) = 21\left(\frac{1}{3}\right)$	$\frac{1}{7} + \frac{4(1)}{21} = \frac{1}{3}$
$21\left(\frac{x}{7}\right) + 21\left(\frac{4x}{21}\right) = 21\left(\frac{1}{3}\right)$	$\frac{1}{7} + \frac{4}{21} = \frac{1}{3}$
$3x + 4x = 7$	$\frac{3}{21} + \frac{4}{21} = \frac{1}{3}$
$7x = 7$	$\frac{7}{21} = \frac{1}{3}$
$x = 1$	$\frac{1}{3} = \frac{1}{3}$