Section 2.5

Solving Equations

Using Addition and

Subtraction

Goal: to use inverse operations to solve for a variable

You are going to sell a trailer full of pumpkins for $.79 per pound. How could you figure out the total weight of pumpkins? Trailer+Pumkins — trailer

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We will use *inverse operations* to solve for the variable in an equation.

inverse operations - undo each other.

Ex: add/sub, mult/div, √, squaring

Equivalent equations: produces the same result (have same solution)

Subtraction Prop of Equality:

If x + 4 = 10, then x + 4 - 4 = 10 - 4

x = 6

-if you subtract the same from both sides, it is equal

Solve and check:

$x + 9 = 3$ $-6 + 9 \overset{?}{=} 3$
$\quad -9 \quad -9$ $3 \overset{\checkmark}{=} 3$
$\boxed{x = -6}$

$a + 15 = 10$
$\quad -15 \quad -15$
$\quad\quad a = -5 \checkmark$

$k + 22 = -5$
$\quad -22 \quad -22$
$\quad\quad k = -27 \checkmark$

Addition Prop of Equality:

If $s - 2 = 5$, then $s - 2 + 2 = 5 + 2$

$s = 7$

Solve and check.

$30 = x - 7$
$+7 \quad\quad +7$
$\quad 37 = x \checkmark$

$m - 62 = 15$
$\quad +62 \quad +62$
$\quad\quad m = 77$

One of the smallest horses is a Shetland pony. The horse and the trailer weigh 3375 lbs together. The trailer weighs 2150 lbs. Write an equation and solve to find how heavy the pony is.

$x + 2150 = 3375$
$x = 1225 \text{ lbs}$

Solve the equation and check your solution:

a) 5 - 12 + x + 10 = 8

$-7 + x + 10 = 8$ $x = 5$

b) -8 + 4 = -15 + y - 2

$-4 \overset{?}{=} -4$

$-4 = -17 + y$
$+17 \quad +17$

$13 = y$

Hwk: pg 93 - 95

#10 - 44 evens