Curriculum Outcomes:

PR1: . Generalize a pattern arising from a problem-solving context using linear equations and verify by substitution.

PR3. Model and solve problems using linear equations of the form:

***ax* = *b;* = b , a ≠ 0; *ax* + *b* = *c*; +*b* = *c*, a ≠ 0; = *b*, *x* ≠ 0 ax ax xa**

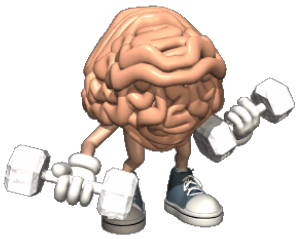
ax*+ *b* = *cx* + *d; a(bx* + *c)* = *d(ex* + *f); a(x* + *b)* = *c; ax* = b+*cx

concretely, pictorially and symbolically, where*a, b, c, d, e, and f* are rational numbers

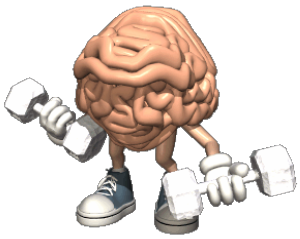
Student Friendly:

"Solving for an unknown variable using opposite operations"

Feb 6-7:53 AM



Warm Up



DETERMINE THE VALUE OF EACH LETTER:

$$P + X - Y = 19 \qquad (P = 12,\ X - Y = 7)$$

$$P - X = 8 \qquad (P = 12,\ X = 4)$$

$$X - Y = 7 \qquad (X = 4,\ Y = -3)$$

P = 12

x = 4

y = -3

Section 6.1

Solving Equations by Using Inverse Operations

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Tim is 3 and he is getting ready to go play in the snow.
When he gets ready he follows the same process each day.

When he goes inside he does eveything in reverse.
What is that process?

1 Put on ski-pants → 2 put on coat → 3 put on boots

take off ski-pants (3) ← take off coat (2) ← take off boots (1)

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Inverse operations: is to do the opposite
(undo or reverse each other's result)

Addition and subtraction are inverse operations

Multiplication and division are inverse operations

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Let's think

You have to show work!

Algebraic Solution

Start with x....(What operations is applied to x?)

$$x + 5 = 8$$

-5 -5

$x = 3$

undo the addition
subtract each side by 5

Jan 30-9:32 AM

$$x - 7 = 8$$

$+7 \quad +7$

$$x = 15$$

Solving One-Step Equations

Write and solve an equation to determine each number.

a) 5 times a number is 16

Let x be the number

$5x = 16$

$\frac{5x}{5} = \frac{16}{5}$

$x = 3.2$

LHS RHS

$5x$ 16

$5(3.2)$

$= 16$

b) A number divide by 7 is 4.5

Let k be the number

$\frac{k}{7} = 4.5$

$(7)\frac{k}{7} = 4.5(7)$

$k = 31.5$

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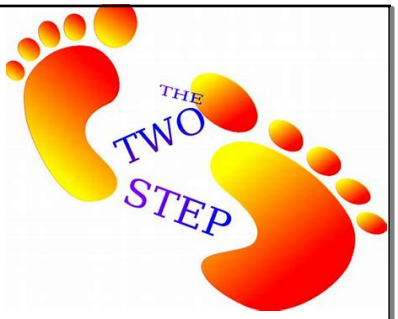
The Two-Step Equation



$2x + 3 = 19$

You will be expected to show work using the algebraic method.

$2x + 3 = 19$ $\quad -3 \quad -3$

$\frac{2x}{2} = \frac{16}{2}$

$x = 8$

Verify Work- Means check your work

$2x + 3 = 19$

LHS:

$2x + 3$

$2(8) + 3$

$16 + 3$

19

RHS:

$= 19$

You Try

The Two-Step Equation

Solve:

$$-2w + 6 = -14$$

$$-2w + 6 = -14$$
$$-6 \quad -6$$

$$\frac{-2w}{-2} = \frac{-20}{-2}$$

$$w = 10$$

If you want to verify

$-2w + 6 = -14$

LHS:

$-2w + 6$

$-2(10) + 6$

$-20 + 6$

-14

RHS:

-14

Solve

$4(x-3) = -10$

$4x - 12 = -10$

$4x - 12 \overset{+12}{\quad} = -10 \overset{+12}{\quad}$

$\frac{4x}{4} = \frac{2}{4}$

$x = \frac{1}{2}$

If you want to verify

$4x - 12 = -10$

LHS: $4(\frac{1}{2}) - 12$

$2 - 12$

-10

RHS: -10

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You Try

Solve

$7 = 2(3x + 4)$

$7 = 6x + 8$

$-8 \quad -8$

$7 = 6x + 8$

$\frac{-1}{6} = \frac{6x}{6}$

$\frac{-1}{6} = x$

If you want to verify

$7 = 6x + 8$

LHS: 7

RHS: $6x + 8$

$6(-1) + 8$

$-1 + 8$

7

Decimals don't change the process

$$\frac{b}{-5} - 7 = 15.8$$

Solve

$$\frac{b}{-5} - 7 = 15.8$$ x(-5) x(-5) x(-5)

$$b + 35 = -79$$ -35 -35

$$b = -114$$

If you want to verify

Check work

$$\frac{b}{-5} - 7 = 15.8$$

LHS:

$$\frac{b}{-5} - 7$$

$$\frac{-114}{-5} - 7$$

$$22.8 - 7$$

$$15.8$$

RHS:

$$= 15.8$$

You Try

The Two-Step Equation

$$7 = \frac{n}{4} - 15.6$$

Solve:

$$7 = \frac{n}{4} - 15.6 \quad \times(4) \quad \times(4) \quad \times(4)$$

$$28 = n - 62.4 \quad +62.4 \quad +62.4$$

$$90.4 = n$$

$$n = 90.4$$

Don't have to verify

Check work

$$7 = \frac{b}{4} - 15.6$$

LHS: 7

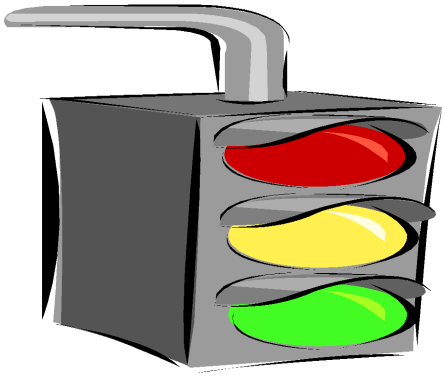
RHS: $\frac{b}{4} - 15.6$

$\frac{90.4}{4} - 15.6$

$22.6 - 15.6$

7

Feb 6-7:59 AM



Now it is time for Home Learning

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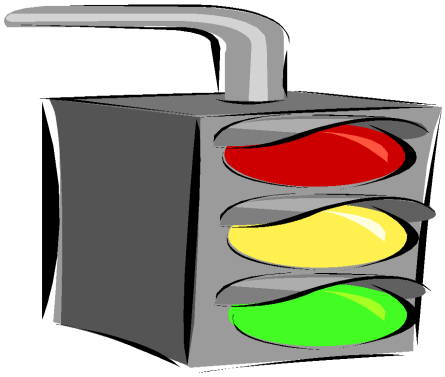

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QUESTIONS

5, 6, 8(all), 9(ab) , 10(abcd),11, 13, 14, 16, 18, 20

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