

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:

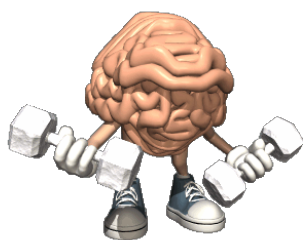
$$ax = b; = b, a \neq 0; ax + b = c; +b = c, a \neq 0; = b, x \neq 0 \quad ax \quad ax \quad xa$$

$$ax + b = cx + d; a(bx + c) = d(ex + f); a(x + b) = c; ax = b + cx \text{ concretely,}$$

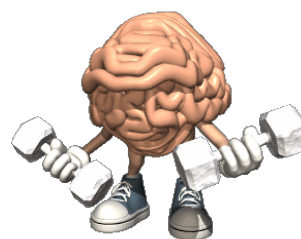
pictorially and symbolically, where $a, b, c, d, e,$ and f are rational numbers

Student Friendly:

“Rearranging an equation with variables on both side of the equal sign”



Warm Up



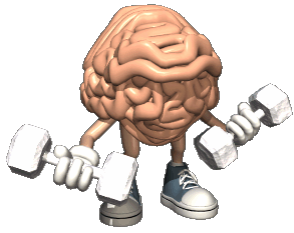
Solve the following

a)

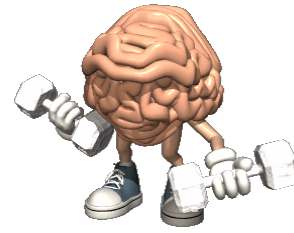
$$\frac{-3x}{4} + \frac{5}{6} = -2$$

b)

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



Warm Up



Solve the following

$$\text{a) } \frac{-3x}{4} + \frac{5}{6} = -2$$

(Red annotations: +12 above 4, +12 above 6, +12 above -2)

$$\frac{-36x}{4} + \frac{60}{6} = -24$$

$$-9x + 10 = -24$$

(Red annotations: -10 above 10, -10 above -24)

$$\frac{-9x}{-9} = \frac{-34}{-9}$$

$$x = \frac{34}{9}$$

$$\text{b) } \frac{-x}{5} - \frac{5}{3} = \frac{3}{5}$$

(Red annotations: +15 above 5, +15 above 3, +15 above 5)

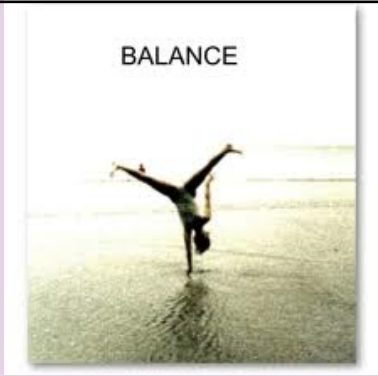
$$\frac{15x}{5} - \frac{75}{3} = \frac{45}{5}$$

$$-3x - 25 = 9$$

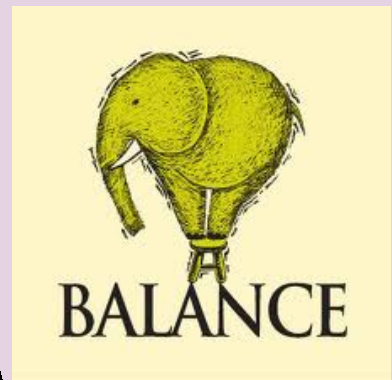
(Red annotations: +25 above 25, +25 above 9)

$$\frac{-3x}{-3} = \frac{34}{-3}$$

$$x = \frac{-34}{3}$$



Section 6.2





What ever you do to one side...
you must do to the other!!

Solving Equations...

Your mission
is to keep
everything
in balance!!

$$\boxed{2x} - 5 = \boxed{10x} - 7$$

(Note: A blue arrow labeled '2x' points from the boxed 2x to the boxed 10x, and another blue arrow labeled '-2x' points from the boxed 10x to the boxed 2x.)

$$-5 \overset{+7}{=} \boxed{8x} - 7 \overset{+7}{}$$

$$\frac{2}{8} = \frac{\boxed{8x}}{8}$$

$$\boxed{x = \frac{1}{4}}$$

$$\boxed{-3c} + 7 = \boxed{2c} - 8$$

$$7 = \boxed{5c} - 8$$

$$\frac{15}{5} = \frac{5c}{5}$$

$$\boxed{c = 3}$$

Verify:

LHS

$$-3c + 7$$

$$-3(3) + 7$$

$$-9 + 7$$

$$-2$$

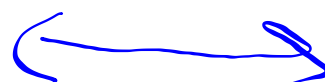
RHS

$$2c - 8$$

$$2(3) - 8$$

$$6 - 8$$

$$-2$$

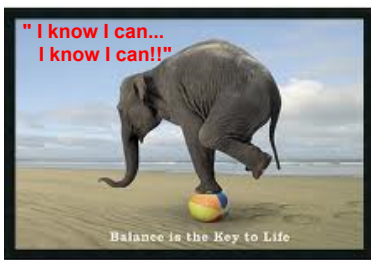


$$\boxed{5a} - 8 = 16 - \boxed{3a}$$

$$\boxed{8a} - 8^{+8} = 16^{+8}$$

$$\frac{8a}{8} = \frac{24}{8}$$

$$\boxed{a = 3}$$



multiply by the lowest
common multiple

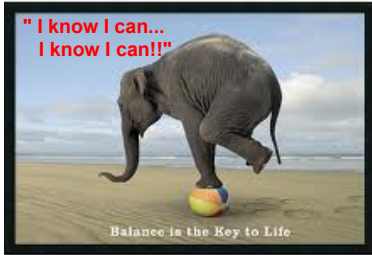
$$\frac{5a}{4} = \frac{a}{6} + 2$$

$$\frac{60a}{4} = \frac{12a}{6} + 24$$

$$15a = 2a + 24$$

$$\frac{13a}{13} = \frac{24}{13}$$

$$a = \frac{24}{13}$$



$$\frac{2a}{3} = \frac{4a}{5} + 7$$

$$\frac{30a}{3} = \frac{60a}{5} + 105$$


$$10a = 12a + 105$$

$$0 = 2a + 105$$

$$\frac{-105}{2} = \frac{2a}{2}$$

$$a = \frac{-105}{2} = -52.5$$

You think that is hard... try doing this!!!



$$\frac{122}{r} = 3, \quad r \neq 0$$

Public service announcement.

$$122 = \frac{3r}{3}$$

$$r = \frac{122}{3}$$

**You Try**

$$\frac{3}{r} + 4 = 12$$

(Handwritten annotations: a blue 'x' over the 3, a blue '(r)' over the 4, and a blue '(r)' over the 12. A red slash is over the denominator 'r'.

$$3 + 4r = 12r$$

(Handwritten annotations: blue boxes around 4r and 12r. Green '-4r' is written above the 4r and above the 12r.

$$\frac{3}{8} = \frac{8r}{8}$$

(Handwritten annotations: a red box around the 8r in the numerator, a red slash over the 8 in the denominator, and a green slash over the 8 in the denominator.

$$r = \frac{3}{8}$$

LETTERS AND NUMBERS

Solve

$$z = \frac{-7}{8}$$

$$9z - 1 - 7z = 7 - 6z - 15$$

$$9z - 7z - 1 = -6z + 7 - 15$$

$$2z - 1 = -6z - 8$$

$$8z - 1 = -8$$

$$\frac{8z}{8} = \frac{-7}{8}$$

$$z = \frac{-7}{8}$$



You Try



Solve

$$x = 5$$

$$5x - 3 + 6x - 4 = -5 - 3x + 8 + 12x$$

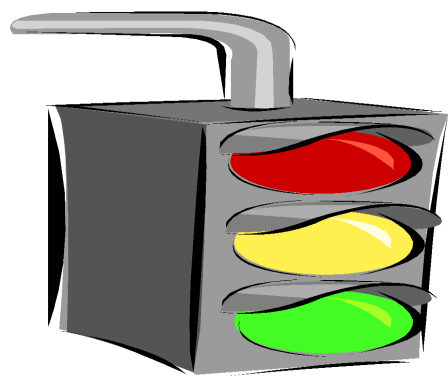
$$5x + 6x - 3 - 4 = -3x + 12x - 5 + 8$$

$$\boxed{11x} - 7 = \boxed{9x} + 3$$

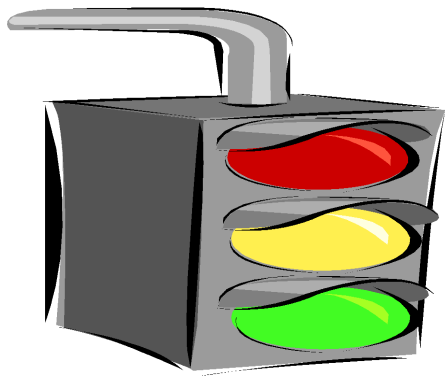
$$\boxed{2x} - 7 = 3$$

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

$$\boxed{x = 5}$$



Now it is
time for
Home
Learning



Worksheet Questions
Questions 1 to 16

AND

PAGE 281-283

QUESTIONS

6 , 8, 10acf

Attachments

Solving Equations (6.1 Review) .pdf