



Warm Up Grade 8
April 19, 2017



Solve each equation. Verify the solution.

a) $-2x + 4 = 26$

$$\begin{aligned} -2x + 4 &= 26 - 4 \\ -2x &= 22 \end{aligned}$$

$$\frac{-2x}{-2} = \frac{22}{-2} \quad \therefore$$

$$x = -11$$

b) $\frac{a}{3} = 6$

$$\begin{aligned} 3 \cdot \frac{a}{3} &= 6 \cdot 3 \\ a &= 18 \end{aligned}$$

c) $-3 = 2x + 15$

$$\begin{aligned} -3 - 15 &= 2x + 15 - 15 \\ -18 &= 2x \end{aligned}$$

$$\begin{aligned} \frac{-18}{2} &= \frac{2x}{2} \\ -9 &= x \end{aligned}$$

LHS RHS

$$\begin{aligned} x &= -11 \\ -2x + 4 & \\ -2(-11) + 4 & \\ 22 + 4 & \\ 26 & \end{aligned}$$

↑ same ✓

page 332

#11

$$\text{II) a)} -8x + 11 = 59$$

$$-8x + 11 - 11 = 59 - 11$$

$$-8x = 48$$

$$\frac{-8x}{-8} = \frac{48}{-8}$$

$$x = -6$$

$$\begin{array}{r} \text{LS} \\ -8x + 11 \end{array}$$

$$\begin{array}{r} \text{RS} \\ -8x - 6 + 11 \\ 48 + 11 \\ \hline 59 \end{array}$$

$$\begin{array}{r} \text{RS} \\ 59 \end{array}$$

$$\text{b) } |c+2| = -34$$

$$|c+2|-2| = -34-2| \quad [-34+(-2)]$$

$$|c| = -55$$

$$\frac{|c|}{11} = \frac{-55}{11}$$

$$c = -5$$

$$\begin{array}{r} \text{LS} \\ |c+2| \end{array}$$

$$|c-5+2|$$

$$-55+2|$$

$$-34$$

$$\begin{array}{r} \text{RS} \\ -34 \end{array}$$

$$\text{c) } 23 = -5b + 3$$

$$23 - 3 = -5b + 3 - 3$$

$$20 = -5b$$

$$\frac{20}{5} = \frac{-5b}{5}$$

$$4 = -b$$

$$-4 = b$$

$$\begin{array}{r} \text{LS} \\ 23 \end{array}$$

$$-5b + 3$$

$$\begin{array}{r} \text{RS} \\ -5b + 3 \end{array}$$

$$-5 \times 4 + 3$$

$$\begin{array}{r} 20 + 3 \\ \hline 23 \end{array}$$

$$11d - 4s = 6a - 1s$$

$$6a - 1s = -4s$$

$$| \quad 6a - 1s + 1s = -4s + 1s$$

$$| \quad 6a = -30$$

$$\frac{6a}{6} = \frac{-30}{b}$$

$$a = -5$$

$$\begin{matrix} LS \\ -4s \end{matrix}$$

RS

$$6a - 1s$$

$$6 \times (-5) - 1s$$

$$-30 - 1s$$

$$-4s$$

$$e) 52 = 2s - 9f$$

$$52 - 2s = 2s - 2s - 9f$$

$$27 = -9f$$

$$\frac{27}{-9} = \frac{-9f}{-9}$$

$$-3 = f$$

$$\begin{matrix} LS \\ 52 \end{matrix}$$

RS

$$2s - 9f$$

$$2s - 9(-3)$$

$$2s - (-27)$$

$$2s + 27$$

$$52$$

$$f) -13 + 4d = 31$$

$$-13 + 13 + 4d = 31 + 13$$

$$4d = 44$$

$$\frac{4d}{4} = \frac{44}{4}$$

$$d = 11$$

$$\begin{matrix} LS \\ -13 + 4d \end{matrix}$$

$$\begin{matrix} RS \\ 31 \end{matrix}$$

$$-13 + 4 \times 11$$

$$-13 + 44$$

$$31$$

$$12 \text{ a) } 3n + 7 = 8$$

page 332 #12

$$3n + 7 - 7 = 8 - 7$$

$$3n = 1$$

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

$$n = \frac{1}{3} \text{ or } 0.\bar{3}$$

$$\begin{array}{r} \text{LS} \\ 3n + 7 \end{array}$$

$$\begin{array}{r} \text{RS} \\ 8 \\ 3 \times \frac{1}{3} + 7 \\ 1 + 7 \\ 8 \end{array}$$

$$b) \quad bx + b = 15$$

$$bx + b - b = 15 - b$$

$$bx = 9$$

$$\frac{bx}{b} = \frac{9}{b}$$

$$x = 1.5$$

$$\begin{array}{r} \text{LS} \\ bx + b \\ b \times 1.5 + b \\ 9 + b \\ 15 \end{array}$$

$$\begin{array}{r} \text{RS} \\ 15 \end{array}$$

$$c) -23 = 5p - 27$$

$$-23 + 27 = 5p - 27 + 27$$

$$4 = 5p$$

$$\frac{4}{5} = \frac{5p}{5}$$

$$0.8 = p$$

$$\begin{array}{r} \text{LS} \\ -23 \end{array}$$

$$\begin{array}{r} \text{RS} \\ 5p - 27 \\ 5 \times 0.8 - 27 \\ 4 - 27 \\ -23 \end{array}$$

Page 332 #12

$$\text{d) } \begin{aligned} 5p + b &= 7 \\ 5p + b - b &= 7 - b \\ 5p &= 1 \\ \frac{5p}{5} &= \frac{1}{5} \\ p &= 0.2 \end{aligned}$$

$$\begin{array}{r} \text{LS} \\ \begin{array}{r} 5p + b \\ 5 \times 0.2 + b \\ 1 + b \\ \hline 7 \end{array} \end{array} \quad \begin{array}{r} \text{RS} \\ 7 \end{array}$$

$$\begin{aligned} \text{e) } 8e - 9 &= -3 \\ 8e - 9 + 9 &= -3 + 9 \\ 8e &= 6 \\ \frac{8e}{8} &= \frac{6}{8} \\ e &= \frac{6}{8} \text{ or } \frac{3}{4} \text{ or } 0.75 \end{aligned}$$

$$\begin{array}{r} \text{LS} \\ \begin{array}{r} 8e - 9 \\ 8 \times 0.75 - 9 \\ 6 - 9 \\ \hline -3 \end{array} \end{array} \quad \begin{array}{r} \text{RS} \\ -3 \end{array}$$

$$\begin{aligned} \text{f) } -17 + 10g &= -9 \\ -17 + 10g + 17 &= -9 + 17 \\ 10g &= 8 \\ \frac{10g}{10} &= \frac{8}{10} \\ g &= \frac{8}{10} \text{ or } \frac{4}{5} \text{ or } 0.8 \end{aligned}$$

$$\begin{array}{r} \text{LS} \\ \begin{array}{r} -17 + 10g \\ -17 + 10 \times 0.8 \\ -17 + 8 \\ \hline -9 \end{array} \end{array} \quad \begin{array}{r} \text{RS} \\ -9 \end{array}$$

page 332

$$13. \quad n = \text{yesterday's temp.}$$

$$2n + 7 = -3$$

$$2n + 7 - 7 = -3 - 7 \quad [-3 + (-7)]$$

$$2n = -10$$

$$\frac{2n}{2} = \frac{-10}{2}$$

$$n = -5$$

$$\begin{array}{r}
 \text{LS} \\
 2n + 7 \\
 \hline
 2x - 5 + 7 \\
 -10 + 7 \\
 \hline
 -3
 \end{array}
 \quad \quad \quad
 \begin{array}{r}
 \text{RS} \\
 -3
 \end{array}$$

Yesterday's temperature was -5°C .

Homework Sheet Extra Prac 2 # 1-7

Ex. Pract

1a) $4x = 32$

$$\frac{4x}{4} = \frac{32}{4}$$
 $x = 8$

$$\begin{array}{r} LS \\ 4x \\ 4 \times 8 \\ 32 \end{array} \quad \begin{array}{r} RS \\ 32 \end{array}$$

b) $-35 = -5x$

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

$$\begin{array}{r} LS \\ -35 \\ -5 \times 7 \\ -35 \end{array} \quad \begin{array}{r} RS \\ -5x \\ -5 \times 7 \\ -35 \end{array}$$

c) $-48 = 8x$

$$\frac{-48}{8} = \frac{8x}{8}$$
 $-6 = x$

$$\begin{array}{r} LS \\ -48 \\ 8 \times -6 \\ -48 \end{array} \quad \begin{array}{r} RS \\ 8x \\ 8 \times -6 \\ -48 \end{array}$$

d) $9x = 54$

$$\frac{9x}{9} = \frac{54}{9}$$
 $x = 6$

$$\begin{array}{r} LS \\ 9x \\ 9 \times 6 \\ 54 \end{array} \quad \begin{array}{r} RS \\ 54 \end{array}$$

$$\begin{aligned} 2a) \quad -8a + 11 &= 27 \\ -8a + 11 - 11 &= 27 - 11 \\ -8a &= 16 \end{aligned}$$

$$\begin{aligned} \frac{-8a}{-8} &= \frac{16}{-8} \\ a &= -2 \end{aligned}$$

$$\begin{array}{rcl} \text{LS} & & \text{RS} \\ -8a + 11 & & 27 \\ -8(-2) + 11 & & \\ 16 + 11 & & \\ 27 & & \end{array}$$

$$b) \quad 12b + 21 = 93$$

$$12b + 21 - 21 = 93 - 21$$

$$12b = 72$$

$$\begin{aligned} \frac{12b}{12} &= \frac{72}{12} \\ b &= 6 \end{aligned}$$

$$\begin{array}{rcl} \text{LS} & & \text{RS} \\ 12b + 21 & & 93 \\ 12 \times 6 + 21 & & \\ 72 + 21 & & \\ 93 & & \end{array}$$

$$c) \quad -42 = 5c - 27$$

$$-42 + 27 = 5c - 27 + 27$$

$$-15 = 5c$$

$$\begin{aligned} \frac{-15}{5} &= \frac{5c}{5} \\ -3 &= c \end{aligned}$$

$$\begin{array}{rcl} \text{LS} & & \text{RS} \\ -42 & & 5c - 27 \\ 5 \times -3 - 27 & & \\ -15 - 27 & & \\ -42 & & \end{array}$$

$$d) \quad 6f - 15 = -45$$

$$6f - 15 + 15 = -45 + 15$$

$$6f = -30$$

$$\frac{6f}{6} = \frac{-30}{6}$$

$$f = -5$$

$$\begin{array}{rcl} \text{LS} & & \text{RS} \\ 6f - 15 & & -45 \\ 6 \times -5 - 15 & & \\ -30 - 15 & & \\ -45 & & \end{array}$$

$$3a) 2x - 7 = 9$$

$$2x - 7 + 7 = 9 + 7$$

$$2x = 16$$

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

$$x = 8$$

$$\begin{array}{r}
 \text{LHS} \\
 2x - 7 \\
 2x + 8 - 7 \\
 \hline
 16 - 7 \\
 \hline
 9
 \end{array}
 \quad
 \begin{array}{r}
 \text{RHS} \\
 9
 \end{array}$$

$$b) -4x + 6 = -14$$

$$-4x + 6 - 6 = -14 - 6$$

$$-4x = -20$$

$$\frac{-4x}{-4} = \frac{-20}{-4}$$

$$x = 5$$

$$\begin{array}{r}
 \text{LHS} \\
 -4x + 6 \\
 -4x + 5 + 6 \\
 \hline
 -20 + 6 \\
 \hline
 -14
 \end{array}
 \quad
 \begin{array}{r}
 \text{RHS} \\
 -14
 \end{array}$$

$$c) 6x - 7 = -19$$

$$6x - 7 + 7 = -19 + 7$$

$$6x = -12$$

$$\frac{6x}{6} = \frac{-12}{6}$$

$$x = -2$$

$$\begin{array}{r}
 \text{LHS} \\
 6x - 7 \\
 6x + 2 - 7 \\
 \hline
 -12 - 7 \\
 \hline
 -19
 \end{array}
 \quad
 \begin{array}{r}
 \text{RHS} \\
 -19
 \end{array}$$

$$d) -7x - 8 = 13$$

$$-7x - 8 + 8 = 13 + 8$$

$$-7x = 21$$

$$\frac{-7x}{-7} = \frac{21}{-7}$$

$$x = -3$$

$$\begin{array}{r}
 \text{LHS} \\
 -7x - 8 \\
 -7x + 3 - 8 \\
 \hline
 21 - 8 \\
 \hline
 13
 \end{array}
 \quad
 \begin{array}{r}
 \text{RHS} \\
 13
 \end{array}$$

$$4 \quad a) \quad 2a+3 = 4$$

$$2a+3-3 = 4-3$$

$$2a = 1$$

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

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

$$\begin{array}{r} LS \\ 2a+3 \\ 2 \times \frac{1}{2} + 3 \\ 1+3 \\ 4 \end{array}$$

$$\begin{array}{r} RS \\ 4 \end{array}$$

$$b) \quad 15 = 10+2b$$

$$15-10 = 10+2b-10$$

$$5 = 2b$$

$$\frac{5}{2} = \frac{2b}{2}$$

$$2.5 = b$$

$$\begin{array}{r} LJ \\ 15 \end{array}$$

$$\begin{array}{r} RS \\ 10+2b \\ 10+2 \times 2.5 \\ 10+5 \\ 15 \end{array}$$

$$c) \quad 3 = 5c - 6$$

$$3+6 = 5c - 6 + 6$$

$$9 = 5c$$

$$\frac{9}{5} = \frac{5c}{5}$$

$$1.8 = c$$

$$\begin{array}{r} LS \\ 3 \end{array}$$

$$\begin{array}{r} RS \\ 5c-6 \\ 5 \times 1.8 - 6 \\ 9-6 \\ 3 \end{array}$$

$$d) \quad 9f-7 = 1$$

$$9f-7+7 = 1+7$$

$$9f = 8$$

$$\frac{9f}{9} = \frac{8}{9}$$

$$f = 0.\bar{8}$$

$$\begin{array}{r} LS \\ 9f-7 \end{array}$$

$$\begin{array}{r} RS \\ 1 \end{array}$$

$$9 \times \frac{8}{9} - 7$$

$$\begin{array}{r} 8-7 \\ 1 \end{array}$$

$$\begin{array}{r} 9 \times \frac{8}{9} < \frac{72}{9} \\ = 8 \end{array}$$

5a) n = the number

$$2n + 5 = 17$$

$$2n + 5 - 5 = 17 - 5$$

$$2n = 12$$

$$\frac{2n}{2} = \frac{12}{2}$$

$$n = 6$$

$$\begin{array}{r} LS \\ 2n+5 \\ 2\times 6+5 \\ 12+5 \\ \hline 17 \end{array}$$

$$\begin{array}{r} RS \\ 17 \end{array}$$

The number is 6.

b) n = the number

$$5n - 6 = 29$$

$$5n - 6 + 6 = 29 + 6$$

$$5n = 35$$

$$\frac{5n}{5} = \frac{35}{5}$$

$$n = 7$$

$$\begin{array}{r} LS \\ 5n-6 \\ 5\times 7-6 \\ 35-6 \\ \hline 29 \end{array}$$

The number is 7.

b. a = number of students who attended

$$13a + 125 = 944$$

$$13a + 125 - 125 = 944 - 125$$

$$13a = 819$$

$$\frac{13a}{13} = \frac{819}{13}$$

$$a = 63$$

LS	RS
$13a + 125$	944
$13 \times 63 + 125$	
$819 + 125$	
944	

63 students attended

7. If it cost \$225 for the class to go skating and they have to pay \$150 for ice rental and \$3 for skate rental, how many students skated?

s = # who skated

$$3s + 150 = 225$$

$$3s + 150 - 150 = 225 - 150$$

$$3s = 75$$

$$\frac{3s}{3} = \frac{75}{3}$$

$$s = 25$$

25 students skated.

a) Which number could you multiply $\frac{5}{9}$ by to get the product 5?

$$\frac{5}{9} \times \boxed{\frac{9}{1}} = 5 \quad = \frac{45}{9} \quad = \frac{5 \times \boxed{9}}{9 \times \boxed{1}}$$



$$\frac{45}{9} = 5$$

b) Which number could you multiply $\frac{4}{7}$ by to get the product 4?

$$\cancel{\frac{4}{7}} \times \frac{7}{1} = 4$$

$$\frac{4}{7} \times \frac{\square}{\square} = \frac{4}{1} = \frac{7 \times \square}{4 \times \square}$$



Sarah shares a bag of candy with her friend Emma so that each of them get 15 candy. How much candy did the bag contain?

$$\overline{\text{Total candy}} = T$$


- a) Write an equation that you can use to solve the problem
 let t represent the number of candy in the bag originally

$$\frac{t}{2} = 15$$

b) solve

$$\begin{aligned} \frac{t}{2} &= 15 \\ 2 \cdot \frac{t}{2} &= 15 \cdot 2 \\ t &= 30 \end{aligned}$$

c) verify

$$\begin{array}{ccc} t = 30 & & \\ \text{L.H.T} & & \text{R.H.T} \\ \frac{t}{2} & & 15 \\ \frac{30}{2} & & 15 \\ 15 & & \end{array}$$

Example 1)

Grandma has enough money to give the same amount to her five grandchildren.

After Grandma gives them the money, each grandchild has \$25 . How much money did Grandma have to start?

- Write an equation to represent this problem.
- Solve the equation.
- Verify the solution.



a) let G represent Grandma's money

$$\frac{G}{5} = 25$$

b) ~~$\frac{G}{5} = 25 \times 5$~~

$$G = \$125$$

Grandma had \$125 to split amongst her 5 grandkids.

c) $G = 125$

LHS RHS

$$\frac{G}{5} = 25$$

$$\begin{aligned} \frac{G}{5} &= 25 \\ \frac{125}{5} &= 25 \\ 25 &= 25 \quad \checkmark \end{aligned}$$

Same

Example 2)

The school's student council sold T-shirts for charity. The council bought the T-shirts in boxes of 40. The student council added \$6 to the cost of each T-shirt. Each T-shirt sold for \$26. What did the student council pay for 1 box of T-shirts?

$c = \text{cost for 1 box}$

$$\frac{c}{40} + 6 = 26$$

$$\frac{c}{40} + 6 - 6 = 26 - 6$$

$$\frac{c}{40} = 20$$

$$\frac{c}{40} \times 40 = 20 \times 40$$

$$c = 800$$

$$\begin{array}{rcl} & & \text{LS} \\ \frac{c}{40} + 6 & & 26 \\ \text{RS} & & \\ & & 26 \end{array}$$

Student council
paid \$800 per box

$$\begin{array}{rcl} & & \text{LS} \\ \frac{800}{40} + 6 & & 26 \\ 20 + 6 & & \\ & & 26 \end{array}$$

Class/Homework

Quiz Tomorrow Similar to warm up from today

pg. 336

#3(ac), #4(a,c), #5, #6, #7~~acd~~ /11

Test April 27 (Thursday)

7a) $\frac{n}{4} + 3 = 10$

SAM ~~DAB~~

$$\frac{n}{4} + 3 - 3 = 10 - 3$$

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

~~$$4 \times \frac{n}{4} = 7 \times 4$$~~

$$n = 28$$

$$\frac{b}{6} = 3$$

~~$$6 \times \frac{b}{6} = 3 \times 6$$~~

$$b = 18$$