

Name: _____

Date: _____

MFM 2P1

CHAPTER 4: Linear Equations

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3, 4	4.2 - Solve a Multi-Step Linear Equation	Page 169 – 173 (Day 1) #1 and 2abcf, 3 – 5h (Day 2) #5ij, 6, 8 – 14
5	(consolidate)	
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4.1 – SOLVING ONE and TWO-STEP LINEAR EQUATIONS**KEY CONCEPTS**

Equations can be solved in different ways, including flow charts, algebra tiles, and opposite operations.

One way to check the solution to a linear equation is to substitute the solution into the original equation. If the left side and the right side of the equation have the same value, the answer is correct.

EXAMPLE 1 *Solving One-Step Linear Equations*

Solve each of the equations for the variable x and perform a check (where required) to verify your solution.

(a) $x + 3 = 5$

Check:

(b) $x - 7 = -2$

Check:

(c) $8 + x = 9$

(d) $5x = 40$

Check:

(e) $-7x = 28$

Check:

(f) $-9x = -27$

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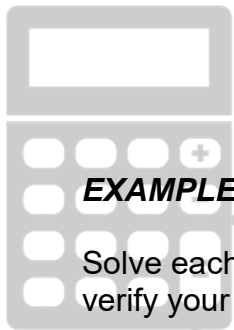
(g) $\frac{x}{6} = 3$

(h) $\frac{x}{-5} = 9$

(i) $\frac{x}{-2} = -11$

Check:

Check:

**EXAMPLE 2***Solving Two-Step Linear Equations*

Solve each of the equations for the variable x and perform a check (where required) to verify your solution.

(a) $3x - 5 = 7$

(b) $2x + 3 = -1$

(c) $5 + \frac{x}{4} = 10$

Check:

Check:

(d) $\frac{3x}{5} = 12$

EXAMPLE 3 *Application: Recording Studio Costs*

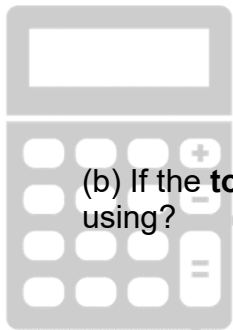
A recording studio charges **according** to the equation $C = 35h + 275$, where “**C**” represents the **total cost** and “**h**” represents the **number of hours** used to use the recording studio.

Use the equation to answer the following questions:

(a) Calculate the **total cost** if a singer uses the studio for **9 hours**



(b) If the **total cost** to use the studio is **\$800**, how many hours would the singer be using?

**Homework:**

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(Day 1) #1 – 8

(Day 2) #12 – 14



4.2 – SOLVE MULTI-STEP LINEAR EQUATIONS**KEY CONCEPTS**

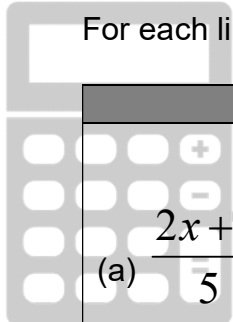
Multi-step linear equations can be solved using opposite operations, algebra tiles, or a computer algebra system.

When a linear equation involves fractions, it is useful to multiply each term by the least common multiple of the denominators.

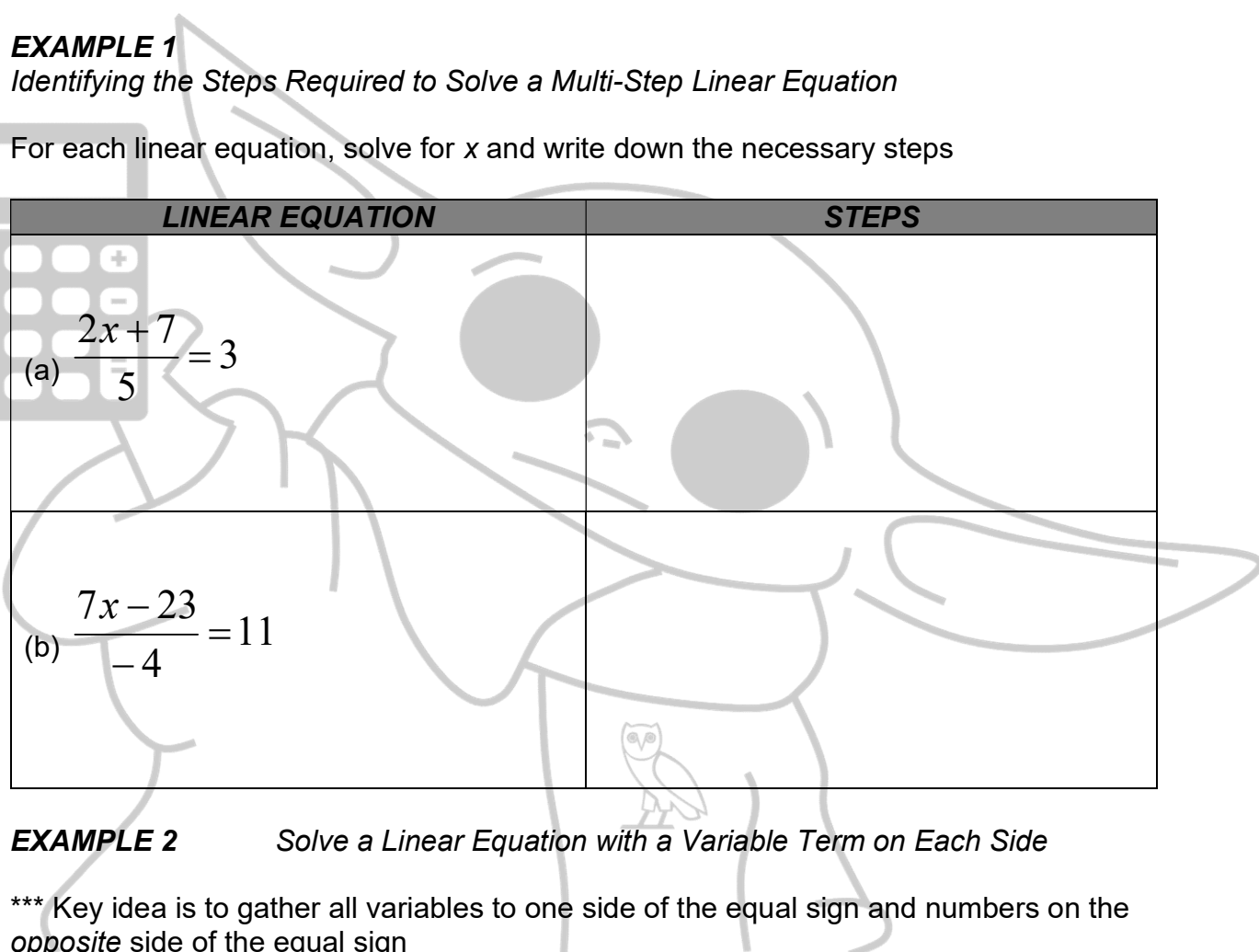
EXAMPLE 1

Identifying the Steps Required to Solve a Multi-Step Linear Equation

For each linear equation, solve for x and write down the necessary steps



LINEAR EQUATION	STEPS
(a) $\frac{2x+7}{5} = 3$	
(b) $\frac{7x-23}{-4} = 11$	


EXAMPLE 2

Solve a Linear Equation with a Variable Term on Each Side

*** Key idea is to gather all variables to one side of the equal sign and numbers on the opposite side of the equal sign

Solve for x for the equation $5x + 21 = -15 - 7x$

EXAMPLE 3 Solving Linear Equations with BracketsSolve the following equations for x

(a) $2(x - 4) = 28$

(b) $-3(x - 5) + 4 = 8x + 52$

EXAMPLE 4 Solving Multi-Step Linear Equations with Fractions

*** Key idea is to *eliminate* the fraction by multiplying each term by the **least common multiple**.

→ The **least common multiple** is a number in which *both* denominators (bottom number of fraction) can evenly multiply into

For each equation, identify the **least common multiple** and solve each equation for x .

(a) $\frac{3x}{10} + \frac{x}{5} = 7$

(b) $\frac{x+1}{6} + \frac{x-2}{8} = 6$

(leave final answer as a fraction)

Homework:

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(Day 1) #1 and 2abcf, 3 – 5h

(Day 2) #5ij, 6, 8 – 14