3.1 Introduction to Solving Equations – Part I

Notes

Go to http://en.wikipedia.org/wiki/Equation.

Read the introduction and the section titled "Knowns and Unknowns". Take notes that will help you to understand the instructions below.

Activity 1 – Draw a circle around all equations. Cross-out expressions.

$3x+1=11$	$5x+3$	$10+y$	$15+w=2w-15$
$x+2+3x$	$2(y+4)=18$	$5x$	$\frac{1}{2}x+10=14$
$2x+10+3x=15$	$20x+10$	$x=11$	$4w+3w+10$

Class Notes – State the expression that is on the left side of each equation. If possible, simplify it.

LP#1 $3x+1=11$	$15+w=2w-15$	$2(y+4)=18$
LP#2 $\frac{1}{2}x+10=14$	$10y-6y=16$	$2x+10+3x=15$

Class Notes – State the expression that is on the right side of each equation. If possible, simplify it.

LP#3 $2x+8=22$	$15=5(w-10)$	$5+y=21-3y$
LP#4 $16+z=5z-3z+10$	$5x=25$	$30=18+x-10$

Class Notes – State the unknown in each equation.

LP#5 $2x + 8 = 22$	$16 + z = 5z - 3z + 10$	$5 + y = 21 - 3y$
LP#6 $5 + y = 21 - 3y$	$15 = 5(w - 10)$	$\frac{1}{2}x + 10 = 14$
LP#7 $5x = 25$	$10y - 6y = 16$	What is another term we can use to describe the unknown in an equation?

Review – State whether each is an expression or an equation. If possible, simplify each expression and each expression in each equation.

R#1 $21 + a$	$5(x + 10) = 20$
R#2 $6x + 8 = 20$	$4w + 3 + w = 18$
R#3 $10 + p = 2p - 20$	$2k + 12 + 8k$

Homework – State whether each is an expression or an equation.

1) $4x - 7$ **2)** $4(y + 8) = 36$ **3)** $15x + 13$ **4)** $5x + 13 + 6x = 18$

5) $10x - 4 - 7x = 20$ **6)** $9x + 2$ **7)** $3(y - 5) = 33$ **8)** $6x - 2 - x$

9) $5x + 2 - 3x + 7$ **10)** $4x + 10 + 5 = 35$ **11)** $3y + 10y$ **12)** $6(y - 10) = 60$

State the expression that is on the left side of each equation. If possible, simplify it.

13) $13y - 9y = 20$ **14)** $5(y + 3) = 15$ **15)** $16 + 2w = 3w - 16$ **16)** $11x + 9 + 3 = 43$

17) $45 + 5w = 10w - 75$ **18)** $30 + 2w = 4w - 30$ **19)** $5y - 3y = 8$ **20)** $6(y + 4) = 54$

21) $4(y - 5) = 36$ **22)** $13y - 9y = 44$ **23)** $10 + 3w = 5w - 22$ **24)** $15y - 9y = 36$

State the expression that is on the right side of each equation. If possible, simplify it.

25) $6x + 24 = 66$ **26)** $30 = 10(w - 8)$ **27)** $17 + 3z = 7z + z - 3$ **28)** $8 + 3y = 24 - y$

29) $3 + 6y = 19 + 2y$ **30)** $11 + 3z = 5z - z + 5$ **31)** $10x + 40 = 80$ **32)** $90 = 30(w + 2)$

33) $45 = 5(w - 1)$ **34)** $15 - y = 31 - 5y$ **35)** $24 = 3(w + 2)$ **36)** $6 + 3z = 7z - 3z$

Synthesis

Convert each expression into an equivalent expression containing radical coefficients.

37) $3x + 10$ **38)** $6x - 10$ **39)** $5a + 2b - 4$ **40)** $9y + 10x$ **41)** $7m + n + 13$

Convert each expression into an equivalent expression containing decimal coefficients.

42) $\frac{3}{4}x + 5$ **43)** $\frac{1}{8}x - 6$ **44)** $\frac{2}{9}a + \frac{1}{2}b - 3$ **45)** $\frac{3}{10}y + \frac{3}{8}x$ **46)** $\frac{7}{9}m + 3$

Convert each expression into an equivalent expression containing fractional coefficients.

47) $0.25x + 9$ **48)** $0.375x - 10$ **49)** $0.11a + 0.2b - 4$ **50)** $0.5y + 0.7x$ **51)** $0.625m - 5$