10.11.15

Unit 3 - Equations

Solving Equations Using Addition and Subtraction *Section 7.1* *Pg. 342-345*	Review: Expression vs. Equation (Equation has an = sign) Equivalent Equations, Solving by Addition, Solving by Subtraction, Adding Negative Integers (opposite operations) Classwork pp. 344-5: 5, 7, 9, 11, 13, 15, 17, 18, 20, 26, 27, 29, 33, 43, 46, 47, 49, 52 Homework pp. 344-5: 6, 8, 10, 12, 14, 16, 19, 23, 28, 32, 38, 44, 45, 48, 50, 51, 53, 54, 55

Notes:

Expression: $3x^2 - 5x + 2$

Equation: $5x - 2 = 7$ (short form for equation.)

Equations have SOLUTIONS — which make the eqn true

Equality

① Reflexive Property: If $a = b$, then $b = a$

② "Requires balance": If $a = b \Rightarrow a + c = b + c$.

Solving equations requires the use of SAMDEB

"opposite operations"

Classwork

Pg: 344 - 345

What number would you add to both sides to solve each equation?

5. $x - 3 = 11$ $+3$

7. $n - 7 = -8$ $+7$

9. $3 = y - 10$ $+10$

What number would you subtract from both sides to solve each equation?

11. $x + 6 = 13$ -6

13. $y + 2 = -7$ -2

15. $x + 3 = 9$ -3

Solve and check.

17. $m - 5 = -4$

$m - 5 + 5 = -4 + 5$

$m = 1$ ← solution

Check.

LHS	RHS
$m-5$ if $m=1$	-4
$1-5$	
$= -4 = RHS$ ✓	

18. $2 = -3 + n$

$2 + 3 = -3 + 3 + n$

$5 = n$

$n = 5$

Check

LHS	RHS
2	$-3+n$
	$n=5$
	$-3+5$
	$= 2$
	$= LHS$ ✓

20. $r + 7 = -9$

$r + 7 - 7 = -9 - 7$

$r = -16$

Check LHS	RHS
$r+7$	-9
$\Rightarrow -16+7$	
$= -9$ ✓	

26. $-11 = t - 1$

$-11 + 1 = t - 1 + 1$

$-10 = t$

$t = -10$

Check

LHS	RHS
-11	$t-1$
	$\Rightarrow -10-1$
	$= -11 = LHS$ ✓

27. $x + 1.5 = 3.5$

$x + 1.5 - 1.5 = 3.5 - 1.5$

$x = 2$

Check LHS	RHS
$x+1.5$	3.5
$2+1.5$	$= LHS$ ✓
$= 3.5$	

29. $4.6 = t - 1.4$

$4.6 + 1.4 = t - 1.4 + 1.4$

$6 = t$

Check LHS	RHS
4.6	$t-1.4$
	$6 = 1.4$
	$= 4.6$
	$= LHS$ ✓

33. $9 = 8.2 + x$

$9 - 8.2 = 8.2 - 8.2 + x$

$0.8 = x$

43. Numbers Three more than a number, x, is eight. What is the number?

"+" "="

a) $x - 3 = 8$ **b)** $x + 8 = 3$ ✗

c) $x + 3 = 8$ ✓ **d)** $x - 8 = 3$ ✗

$x + 3 = 8$

$x = 8 - 3$

$x = 5$

Solve by adding or subtracting. No check

46. $y - \frac{1}{7} = \frac{5}{7}$

$y = \frac{5}{7} + \frac{1}{7}$

$\Rightarrow y = \frac{6}{7}$

47. $x + \frac{1}{2} = \frac{3}{4}$

$x = \frac{3}{4} - \frac{1}{2}$

$x = \frac{3}{4} - \frac{2}{4}$

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

49. $\frac{7}{12} = m - \frac{1}{6}$ $\quad m - \frac{1}{6} = \frac{7}{12}$

$\frac{7}{12} + \frac{1}{6} = m$

$\Rightarrow m = \frac{7}{12} + \frac{2}{12}$

$= \frac{9}{12} = \frac{3}{4}$ reduce!

52. $x - 4\frac{1}{2} = 1\frac{1}{3}$

$x - \frac{9}{2} = \frac{4}{3}$

$x = \frac{4}{3} + \frac{9}{2}$

$x = \frac{8}{6} + \frac{27}{6}$

$x = \frac{35}{6}$