Skills: Solve one and two step equations.

- Can we simplify the left and/or right side of the equation (like terms together)?
- Use OPPOSITE operations to
  - Isolate the variable; what side has 'more'?
  - Solve for the unknown

a) $x + 11 = 30$

$-11 \quad -11$

$x = 19$

b) $6 = k - 6$

$+6 \quad +6$

$12 = k$ OR $k = 12$

c) $-12 = 4a$

$\frac{}{4} \quad \frac{}{4}$

$a = -3$

d) $\frac{n}{10} = -9$ $\times 10$

$n = -90$

e) $1 + 8x - 8 = 17$ simplify

$8x - 7 = 17$ $+7$

$8x = 24$ $\div 8$

$x = 3$

f) $5 - 3p + 8p = 15$ simplify

$5 + 5p = 15$ -5 ... isolate variable

$5p = 10$ $\div 5$ ... solve

$p = 2$

g) $7n - 5 = 1 + 6n$

$-6n \quad -6n$ more "n", $-6n$

$n - 5 = 1$ solve ... $+5$

$n = 6$

h) $4x + 4x - 8 = 3x - 7$ simplify ... like terms

$8x - 8 = 3x - 7$ simplify ... more x $(-3x)$

$-3x \quad -3x$

$5x - 8 = -7$ isolate x ... $+8$

$+8 \quad +8$

$\frac{5x}{5} = \frac{1}{5}$ solve ... $\div 5$

$x = \frac{1}{5}$

Skills: Use logic to solve puzzles, no guessing.

Addition Squares

Name: _____ Date: _____

Each row, column and diagonal add up to the values shown. Can you logically fill in the rest of the grid of numbers?

I. NO GUESS
II.
III
IV

2	5	9	16
4	1	8	13
	7	3	16
12	13	20	6

16-14
13-9
13-6
20-11
6-5

I.
II.
III
IV

4	1	7	6	18
12	5	3	15	35
8	9	13	10	40
14	11	2	16	43
38	26	25	47	38

18-12
35-32
43-29
26-23
25-23
47-37
38-22

Outcome: Solve equations that contain the variable under the radical.

- Can we simplify the left and/or right side of the equation (like terms together)?
- Use OPPOSITE operations to
  - Isolate the variable expression under the radical
  - Square each side of the equation (past skill - squaring a square root)
  - Solve for the unknown

1. $8 = \sqrt{x+4}$

$[\ ]^2 = [\sqrt{x+4}]^2$

$64 = x + 4$

$-4 \quad -4$

$60 = x$

$(\sqrt{x+4})(\sqrt{x+4}) = x+4$

$\sqrt{5}\sqrt{5} = \sqrt{25} = 5$

$\sqrt{9}\sqrt{9} = \sqrt{81} = 9$

$\sqrt{11}\sqrt{11} = \sqrt{121} = 11$

2. $3 = \sqrt{3x-12}$

$(\ )^2 = (\sqrt{3x-12})^2$

I. isolate √
II. square each side

$9 = 3x - 12$

III. isolate x, add 12

$21 = 3x$

IV. solve ... ÷3

$x = 7$

I. isolate √

II. square each side

III. solve

3. $\sqrt{5x} + 10 = 20$

-10

$(\sqrt{5x})^2 = (10)^2$

$5x = 100$

$\div 5$

$x = 20$

4. $\sqrt{2x} - 9 = -5$

$+9 \quad +9$

$(\sqrt{2x})^2 = (4)^2$

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

$x = 8$

I.

5. $3 = \sqrt{x-9} + 1$

$-1 \quad -1$

II

$(2)^2 = (\sqrt{x-9})^2$

$4 = x - 9$

III add 9

$13 = x$ or $x = 13$

II.

6. $(\sqrt{-1-13x})^2 = (8)^2$

III.

$-1 - 13x = 64$

$+1 \quad +1$

$-13x = 65$

$\div (-13)$

$x = -5$

7. $7 + \sqrt{x-9} = 17$

$-7 \quad -7$

$(\sqrt{x-9})^2 = (10)^2$

$x - 9 = 100$

$+9 \quad +9$

$x = 109$

8. $-12 = -6\sqrt{x+2}$

$\div (-6)$

$(2)^2 = (\sqrt{x+2})^2$

$4 = x + 2$

$-2 \quad -2$

$x = 2$