Simplifying radicals: A very common radical expression is a square root. One way to think of a square root is the number that will multiply by itself to create a desired value. For example: $\sqrt{2}$ is the number that will multiply by itself to equal 2. And in like manner $\sqrt{16}$ is the number that will multiply by itself to equal 16. In this case the value is 4 because $4 \times 4 = 16$. (When the square root of a perfect square number is taken you get a nice whole number value. Otherwise an irrational number is produced.)

Example 1:

Simplify $\sqrt{20}$ ← get the # under √ as small as possible

Answer:

1·20
2·10
4·5

$\sqrt{20} = \sqrt{4 \cdot 5} = 2\sqrt{5}$ Answer: $2\sqrt{5}$

$\sqrt{20}$ is equivalent to $2\sqrt{5}$ but $2\sqrt{5}$ is considered to be in ***simplest radical form***.

1) $\sqrt{20}$

$\sqrt{4 \cdot 5}$
$\sqrt{4} \cdot \sqrt{5}$
$2\sqrt{5}$

2) $\sqrt{50}$

$\sqrt{25 \cdot 2}$
$\sqrt{25} \cdot \sqrt{2}$
$5\sqrt{2}$

3) $\sqrt{18}$

$\sqrt{9 \cdot 2}$
$\sqrt{9} \cdot \sqrt{2}$
$3\sqrt{2}$

4) $\sqrt{75}$

$\sqrt{25 \cdot 3}$
$\sqrt{25} \cdot \sqrt{3}$
$5\sqrt{3}$

5) $\sqrt{48}$

$\sqrt{16 \cdot 3}$
$\sqrt{16}\ \sqrt{3}$
$4\sqrt{3}$

6) $\sqrt{700}$

$\sqrt{100 \cdot 7}$
$\sqrt{100}\sqrt{7}$
$10\sqrt{7}$

Simplifying within a radical: When there is an expression inside of the square root, the radical acts like a parenthesis and all computation must occur prior to taking the square root.

Example 2:

Simplify $\sqrt{25-13}$

Answer:

$\sqrt{25-13} = \sqrt{12} = \sqrt{4 \cdot 3} = 2\sqrt{3}$ Answer: $2\sqrt{3}$

#7 – 9: Simplify the following. Show your work.

7) $\sqrt{100-36}$

$\sqrt{64}$
8

8) $\sqrt{50-5}$

$\sqrt{45}$
$\sqrt{9} \cdot \sqrt{5}$
$3\sqrt{5}$

9) $\sqrt{46-10}$

$\sqrt{36}$
6

Perfect Squares

Multiplication Table

X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

18
45
50

HOMEWORK:

	5.2	I can factor quadratic expressions	5.2A #1 – 33 odd (P-9)		☺	😐	☹
		I can solve quadratic equations by factoring	5.2B #1 – 9 (P-11)		☺	😐	☹
			5.2B #10-17 (P-12)				
			5.2C #1 – 6 (P-13)		☺	😐	☹
1/30		I can simplify radical expressions	5.2D #1, 8 (P-15)		☺	😐	☹