January 14th

Due Today: HW 6.6
Due Next Class: HW 6.7

Unit 6: Exponents

Lesson 6.7: Simplifying Variable Radicals

Get ready: Check your HW:

1) $30\sqrt{10}$

2) $\sqrt{5}$

3) $-16\sqrt{15}-60\sqrt{10}$

4) $\frac{20}{3}$

5) $6\sqrt{5}$

6) $4\sqrt{6}$

7) -10

8) $\sqrt{5}$

9) $2\sqrt{3}-3\sqrt{30}$

10) $\frac{\sqrt{2}}{18}$

11) $2\sqrt{6}-6\sqrt{3}$

12) $8\sqrt{105}$

13) $-\frac{3\sqrt{5}}{5}$

14) $\frac{\sqrt{6}}{2}$

15) $\frac{4\sqrt{10}}{25}$

16) $\frac{\sqrt{3}}{3}$

Homework Review

① $5\sqrt{15} \cdot 2\sqrt{6}$

$10\sqrt{90}$ ←

$\sqrt{9}\ \sqrt{10}$

$10 \cdot 3\sqrt{10}$

$30\sqrt{10}$

1
4
9
16 X
25 X
36 X
49 X
64 X
81 X
90/
90/
100
121.

③ $-4\sqrt{15}(4+5\sqrt{6})$

$-16\sqrt{15} + -20\sqrt{90}$

$\sqrt{90} = \sqrt{9}\ \sqrt{10}$

$-20 \cdot 3\sqrt{10}$

$-16\sqrt{15} - 60\sqrt{10}$

Jan 15-12:28 PM

④ $\frac{5\sqrt{16}}{\sqrt{9}} = \frac{5 \cdot 4}{3} = \boxed{\frac{20}{3}}$

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(a) $\sqrt{6}(\sqrt{2} - 3\sqrt{5})$

$\sqrt{12} - 3\sqrt{30}$

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

$2\sqrt{3}$

$2\sqrt{3} - 3\sqrt{30}$

1
4x
9x
16x
25x
30
36

$2x - 3y$

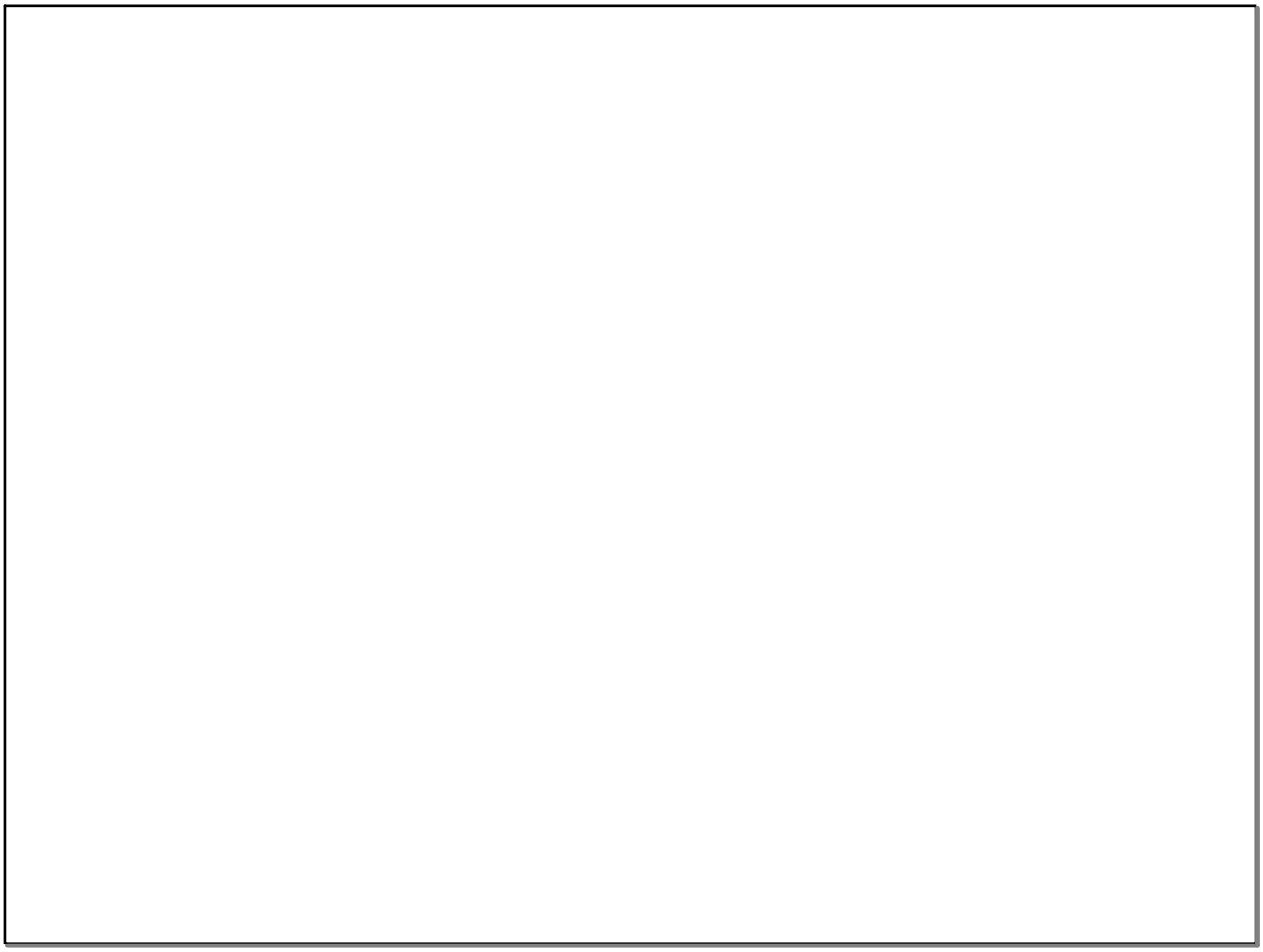
(15) $\frac{4\sqrt{2}}{5\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{4\sqrt{10}}{5 \cdot 5}$

$\sqrt{25}$

$= \boxed{\frac{4\sqrt{10}}{25}}$

$\sqrt{x} \cdot \sqrt{x} = x$

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



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RADICALS

- ✓ Simplify
- ✓ Add
- ✓ Subtract
- Multiply ✓
- Divide ✓
- Variables ✗

Jan 7-11:29 AM

$x^4 * x^4 = x^8$

$(x^4)^2 = x^8$

$\sqrt{x^8} = x^4$

Jan 14-9:17 AM

$\sqrt{a^{10}}$ $\sqrt{z^{14}}$ $\sqrt{p^{100}}$

$= a^5$ $= z^7$ $= p^{50}$

If the power is even, then the square root is 1/2 of the original power

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$x^5 * x^4 = x^9$

$\sqrt{x^9} = \sqrt{x^8 \cdot x^1}$

$= \sqrt{x^8}\sqrt{x}$

$= x^4\sqrt{x}$

Jan 14-9:17 AM

$\sqrt{a^7}$ $\sqrt{z^{15}}$ $\sqrt{p^{71}}$

$a^3\sqrt{a}$ $z^7\sqrt{z}$ $p^{35}\sqrt{p^1}$

If the power is odd, then the square root has 2 parts!

Jan 14-9:24 AM

More Examples:

1) $\sqrt{98n^4}$

$\sqrt{98}$ $\sqrt{n^4}$ even

$\sqrt{49}\sqrt{2}$ n^2

$7\sqrt{2}$

$7n^2\sqrt{2}$

2) $\sqrt{20k^3}$

$\sqrt{20}$ $\sqrt{k^3}$

$\sqrt{4}$ $\sqrt{5}$

$2\sqrt{5}$ $k\sqrt{k}$

$2k\sqrt{5k}$

Practice

1) $\sqrt{32m^4}$

$4m^2\sqrt{2}$

2) $\sqrt{75v}$

$5\sqrt{3v}$

3) $\sqrt{144n^7}$

$12n^3\sqrt{n}$

4) $\sqrt{60x^5}$

$2x^2\sqrt{15x}$

5) $\sqrt{72x^3y}$

$6x\sqrt{2xy}$

$\sqrt{45x^4y^7}$

$\sqrt{45}$	$\sqrt{x^4}$	$\sqrt{y^7}$
$\sqrt{9}\sqrt{5}$		$\sqrt{y^6}\sqrt{y}$
$3\sqrt{5}$	x^2	$y^3\sqrt{y}$

$3x^2y^3\sqrt{5y}$

6) $\sqrt{45x^4y^7}$

$3x^2y^3\sqrt{5y}$

Simplify

1) $\sqrt{16}$

2) $2\sqrt{32}$

Multiply

7) $2\sqrt{10}\cdot -2\sqrt{6}$

8) $\sqrt{5}(\sqrt{5}+\sqrt{6})$

5+√30

Add

3) $3\sqrt{2}+3\sqrt{2}$

4) $2\sqrt{12}+3\sqrt{12}$

Divide

9) $\frac{4\sqrt{5}}{\sqrt{80}}$

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

Subtract

5) $3\sqrt{20}-\sqrt{20}$

$2\sqrt{20}$

6) $-3\sqrt{18}-3\sqrt{2}$

Variables

$\frac{\sqrt{6}}{2}$

11) $-4\sqrt{200a^9}$

12) $\sqrt{112x^2y^4}$

Recap

Key Points

Homework:

HW 6.7.

Next Class:

Quiz Fri. 1/16

Un. 6 Test Thur. 1/22

Q2 Exam Tues. 1/27