Algebra 1 Name_____ ID: 1

Examples: Simplifying Radicals (Square Root)

Date_____ Period____

Simplify.

Perf. □
1
4
9
16
25
36
49
64

1) $\sqrt{164} = \sqrt{2 \cdot 82}$

$\sqrt{2 \cdot 2 \cdot 41}$

$\sqrt{4 \cdot 41}$

$\sqrt{4} \cdot \sqrt{41}$

$2 \cdot \sqrt{41}$

$2\sqrt{41}$

164
4 · 41

2) $\sqrt{128} = \sqrt{64 \cdot 2}$

$\sqrt{64} \cdot \sqrt{2}$

$8 \cdot \sqrt{2}$

$8\sqrt{2}$

3) $\sqrt{8} \cdot -2\sqrt{2} = -8$

$-2\sqrt{8} \cdot \sqrt{2}$

$-2 \cdot \sqrt{16}$

$-2 \cdot 4$

-8

4) $2\sqrt{12} \cdot \sqrt{6}$

$2\sqrt{12 \cdot 6}$

$2\sqrt{72}$

$2\sqrt{12 \cdot 6}$

$2\sqrt{2 \cdot 6 \cdot 6}$

$2 \cdot 6 \cdot \sqrt{2}$

$12\sqrt{2}$

$\sqrt{2 \cdot 36}$

$\sqrt{36} \cdot \sqrt{2}$

$\frac{\sqrt{10}}{\sqrt{5}} = \sqrt{2}$

Rationalize the radical

5) $\frac{2\sqrt{4}}{\sqrt{5}}$

$\frac{2\sqrt{4}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{2\sqrt{20}}{\sqrt{25}} = \frac{2\sqrt{20}}{5}$

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

6) $\frac{4\sqrt{4}}{\sqrt{5}} = \frac{4\sqrt{4} \cdot \sqrt{5}}{5}$

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

$\frac{8\sqrt{5}}{5}$