200
2 100
10 10

Algebra 2 — 6.4
Simplify radicals
Use a calculator to approximate roots
inverse operation
index
radical sign $\sqrt{200}$
radicand $10\sqrt{2}$
principal root
simplify vs. evaluate
whiteboards

Whiteboards

Simplify.

12. $\pm\sqrt{121x^4y^{16}}$

11 11

$x^2 x^2$

$\pm 11x^2y^8$

13. $\pm\sqrt{225a^{16}b^{37}}$

15 15

$\pm 15a^8b^{18}\sqrt{b}$

21. $\sqrt[3]{8a^6b^{12}}$

4 2

2 2

$2a^2b^4$

$\sqrt{14}$

2 7

$\sqrt{14}$

22. $\sqrt[6]{d^{24}x^{36}}$

30. $\sqrt[4]{81(x+4)^{4}}$ $\frac{4}{4}$

$81 \rightarrow 9 \cdot 9$

$3 \cdot 3 \quad 3 \cdot 3$

$3(x+4)$

31. $\sqrt[3]{(4x-7)^{25}}$ $\frac{25}{3}$

$(4x-7)^{8}\sqrt{(4x-7)}$

GuidedPractice

3A. The surface area of a sphere can be determined from the volume of the sphere using the formula $\boxed{S = \sqrt[3]{36\pi V^2}}$, where V is the volume. Determine the surface area of a sphere with a volume of 200 cubic inches.

$S = \sqrt[3]{36\pi V^2}$ $\qquad (\quad)^{\left(\frac{1}{3}\right)}$

$S = \sqrt[3]{(36\pi \cdot 200 \cdot 200)}$ $\qquad 165.4\ in^2$

$S = \sqrt[3]{4523893.421}$

$\boxed{S = \sqrt[3]{36\pi V^2}}$

3B. If the surface area of a sphere is about 214.5 square inches, determine the volume.

$$(214.5)^3 = \left(\sqrt[\cancel{3}]{36\pi V^2}\right)^{\cancel{3}}$$

$$V \approx 295.4 \text{ in}^3$$

$$\frac{9869198.625}{(36\pi)} = \frac{36\pi V^2}{(36\pi)}$$

$$\sqrt{87262.9} = \sqrt{V^2}$$

$$\sqrt{\underset{2x}{4x^2}+12x+\underset{3}{9}}$$

$$\sqrt[2]{(2x+3)^2}$$

$$2x+3$$

WB 6.4 odds