

Feb. 14- bell ringer

Simplify

$$\frac{3\sqrt{5}}{(2\sqrt{3}-4\sqrt{2})} \cdot \frac{(2\sqrt{3}+4\sqrt{2})}{(2\sqrt{3}+4\sqrt{2})}$$

$$\frac{6\sqrt{15} + 12\sqrt{10}}{12 - 32}$$

$$\frac{6\sqrt{15} + 12\sqrt{10}}{-20}$$

$$\frac{-3\sqrt{15} - 6\sqrt{10}}{1}$$

$$-3\sqrt{15} - 6\sqrt{10}$$

$$-3\sqrt{15} - 6\sqrt{10}$$

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Learning target:

You can simplify expressions containing other roots besides square roots. You can simplify expressions containing fractional exponents.

Simplify.

$$1) \sqrt{16} = \underline{4}$$

$$\textcircled{4} \sqrt[5]{32} = \underline{2}$$

$$2) \sqrt[3]{8} = \underline{2}$$

$$\textcircled{5} \sqrt[4]{81} = \underline{3}$$

$$3) \sqrt[4]{16} = \underline{2}$$

$$\textcircled{6} \sqrt[3]{64} = \underline{4}$$

$$7) \sqrt[3]{0.001} = \underline{0.1}$$

$$8) \sqrt[3]{0.008} = \underline{0.2}$$

You can simplify expressions containing fractional exponents.

$$1) 81^{\frac{1}{2}} = (\sqrt{81})^1 = 9$$

$$2) 81^{\frac{5}{2}} = (\sqrt{81})^5 = 9^5 \\ = 59,049$$

$$3) 32^{\frac{4}{5}} = (\sqrt[5]{32})^2 \\ = 2^2 = 4$$

$$4) \quad 343^{\frac{1}{3}} = \left(\sqrt[3]{343} \right)^1 \\ = 7$$

$$5) \quad 216^{\frac{4}{3}} = \left(\sqrt[3]{216} \right)^4 \\ = 6^4 = \boxed{1296}$$

$$6) \left(\frac{1}{16}\right)^{\frac{1}{4}} = \left(\sqrt[4]{\frac{1}{16}}\right)^1$$
$$= \frac{1}{2}$$

$$7) \left(\frac{1}{49}\right)^{\frac{3}{2}} = \left(\sqrt{\frac{1}{49}}\right)^3$$
$$= \left(\frac{1}{7}\right)^3$$
$$= \frac{1}{343}$$

$$\textcircled{8} \quad 8^{2/3} = \left(\sqrt[3]{8} \right)^2 = 2^2 = 4$$

$$\textcircled{9} \quad (27x)^{1/2} = \left(\sqrt{27x} \right) = 3\sqrt{3x}$$

$$10) \quad \underline{3x^{\frac{1}{2}}} = 3\sqrt{x}$$

$$11) \quad (3x)^{\frac{1}{2}} = \sqrt{3x}$$

$$12) \quad 125^{\frac{4}{3}} = \left(\sqrt[3]{125} \right)^4 \\ = 5^4 = 625$$

$$13) \quad 256^{\frac{3}{8}} = \left(\sqrt[8]{256} \right)^3$$

$$16 \cdot 16 \\ 2^4 \cdot 2^4 \\ 2^8$$

$$= 2^3 = \boxed{8}$$

Write in exponential form.

$$1) \sqrt{33} = 33^{\frac{1}{2}}$$

$$2) \sqrt{8n} = (8n)^{\frac{1}{2}}$$

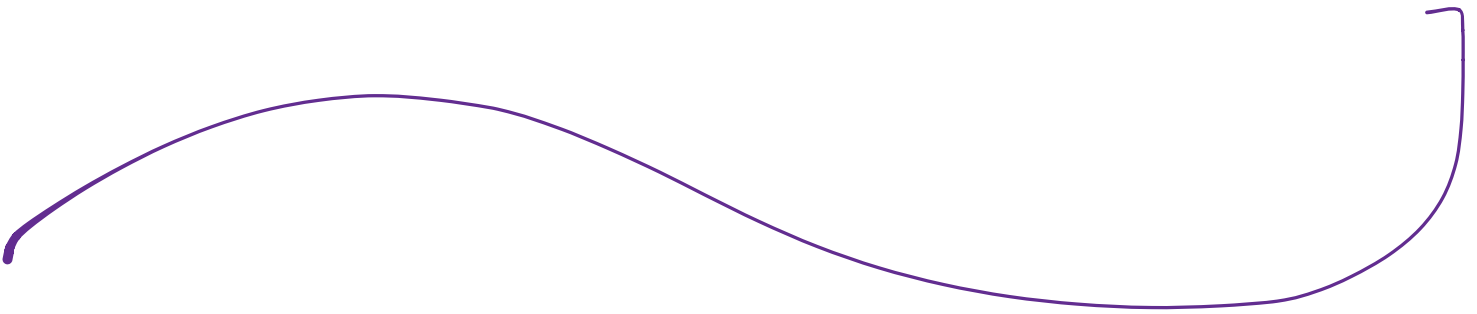
$$3) \sqrt[3]{12} = 12^{\frac{1}{3}}$$

$$4) 2\sqrt{xy} = 2(xy)^{\frac{1}{2}}$$

$$5) \sqrt{3xyz} = (3xyz)^{\frac{1}{2}}$$

Assignment

WS- all



23)

$$-2\sqrt{20} + 2\sqrt[3]{18} - 2\sqrt{5}$$

$$-4\sqrt{5} + 6\sqrt{2} - 2\sqrt{5}$$

$$-6\sqrt{5} + 6\sqrt{2}$$

3)

$$\frac{\sqrt{6}}{\sqrt{27}} = \frac{\sqrt{2}}{\sqrt{9}} = \frac{\sqrt{2}}{3}$$

$$\sqrt{\frac{6}{27}}$$

$$\frac{\sqrt{6}}{3\sqrt{3}}$$

$$\frac{\sqrt{18}}{9} = \frac{3\sqrt{2}}{9}$$

11)

$$\frac{3 - 3\sqrt{3a}}{4\sqrt{8a}}$$

$$\left(\frac{3 - 3\sqrt{3a}}{8\sqrt{2a}} \right) \cdot \frac{\sqrt{2a}}{\sqrt{2a}}$$

$$\frac{3\sqrt{2a} - 3\sqrt{6a^2}}{16a}$$

$$\frac{3\sqrt{2a} - 3a\sqrt{6}}{16a}$$

$$4) \frac{3\sqrt{20}}{2\sqrt{4}} = \frac{3\sqrt{5}}{2}$$

$$15) \frac{3}{4+4\sqrt{5}} \cdot \frac{4-4\sqrt{5}}{4-4\sqrt{5}}$$

$$\frac{12-12\sqrt{5}}{16-80}$$

$$\frac{12-12\sqrt{5}}{-64} = \frac{-3+3\sqrt{5}}{16}$$

$$(19) \frac{(2+5\sqrt{3})}{(-4+4\sqrt{2})} \cdot \frac{(-4-4\sqrt{2})}{(-4-4\sqrt{2})}$$

$$\frac{-8-8\sqrt{2}-20\sqrt{3}-20\sqrt{6}}{16-32}$$

$$16-32$$

$$\frac{-8-8\sqrt{2}-20\sqrt{3}-20\sqrt{6}}{-16}$$

$$-16$$

$$\frac{2+2\sqrt{2}+5\sqrt{3}+5\sqrt{6}}{4}$$

$$4$$