Surds lesson 2

Monday, December 30, 2013
10:30 PM

Surds - Simplifying Surds

$\sqrt{a} \times \sqrt{b} = \sqrt{ab}$

$\sqrt{20} = \sqrt{4 \times 5}$
$= \sqrt{4} \times \sqrt{5}$
$= 2\sqrt{5}$

Simplify $\sqrt{175} = \sqrt{25 \times 7}$
$= \sqrt{25} \times \sqrt{7}$
$= 5\sqrt{7}$

Simplify $4\sqrt{360} = 4 \times \sqrt{36 \times 10}$
$= 4 \times 6 \times \sqrt{10}$
$= 4 \times 6 \times \sqrt{10}$
$= 24\sqrt{10}$

Simplify $7\sqrt{490} = 7 \times \sqrt{49 \times 10}$
$= 7 \times \sqrt{49} \times \sqrt{10}$
$= 7 \times 7 \times \sqrt{10}$
$= 49 \times \sqrt{10}$

Simplify $\sqrt{20x^5} = \sqrt{4 \times 5 \times x^4 \times x^1}$
$= \sqrt{4x^4} \times \sqrt{5x}$
$= 2\sqrt{4} \times \sqrt{x^4} \times \sqrt{5x}$
$= 2x^2 \times \sqrt{5x}$
$= 2x^2\sqrt{5x}$

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

Simplify $\frac{x}{5}\sqrt{72x^3y^7}$

$= \frac{x}{5}\sqrt{36 \times 2 \times x^2 \times x \times y^6 \times y^1}$

$= \frac{x}{5} \times \sqrt{36} \times \sqrt{x^2} \times \sqrt{y^6} \times \sqrt{2xy}$

$= \frac{x}{5} \times 6 \times x \times y^3 \times \sqrt{2xy}$

$= \frac{6x^2y^3}{5} \times \sqrt{2xy}$

$= \frac{6x^2y^3\sqrt{2xy}}{5}$