問題番号 09M02_kakunin3_1 レベル ☆★★	うんな進学塾 中３ 第2章 平方根⑤〜⑧ 練習問題 No.1　解答	うんな進学塾HP

1. 次の数の分母を有理化しなさい。

(1) $\dfrac{4}{\sqrt{8}}$

$= \dfrac{4}{\sqrt{8}} = \dfrac{4\sqrt{8}}{\sqrt{8}\times\sqrt{8}} = \dfrac{4\times 2\sqrt{2}}{8}$

(2) $\dfrac{\sqrt{15}+\sqrt{12}}{\sqrt{3}}$

$\dfrac{\sqrt{3}\left(\sqrt{3}\sqrt{5}+2\sqrt{3}\right)}{\sqrt{3}\times\sqrt{3}} = \dfrac{3\sqrt{5}+6}{3}$

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

$\dfrac{2\left(\sqrt{3}-\sqrt{2}\right)}{\left(\sqrt{3}+\sqrt{2}\right)\left(\sqrt{3}-\sqrt{2}\right)}$

(1) $\sqrt{2}$	(2) $2+\sqrt{5}$	(3) $2\sqrt{3}-2\sqrt{2}$

2. 次の計算をしなさい。

(1) $\sqrt{18}\times\left(-\sqrt{27}\right)$

$= 3\sqrt{2}\times(-3\sqrt{3}) = -9\sqrt{6}$

(2) $\sqrt{75}\div\sqrt{12} = \dfrac{5\sqrt{3}}{2\sqrt{3}} = \dfrac{5}{2}$

(3) $\sqrt{45}\times\sqrt{63}\div\left(-\sqrt{10}\right)$

$= \dfrac{3\sqrt{5}\times 3\sqrt{7}}{-\sqrt{10}} = \dfrac{9\sqrt{5}\times\sqrt{7}}{-\sqrt{5}\times\sqrt{2}} = -\dfrac{9\sqrt{7}}{\sqrt{2}} = -\dfrac{9\sqrt{14}}{2}$

(4) $\sqrt{24}+3\sqrt{6}-\sqrt{54}$

$= 2\sqrt{6}+3\sqrt{6}-3\sqrt{6} = 2\sqrt{6}$

(5) $\sqrt{6}\left(\sqrt{32}-3\sqrt{6}\right) = \sqrt{6}(4\sqrt{2}-3\sqrt{6})$

$= 4\sqrt{12}-3\times 6 = 8\sqrt{3}-18$

(6) $\left(2\sqrt{5}+\sqrt{2}\right)\left(2\sqrt{5}-\sqrt{2}\right)$

$= (2\sqrt{5})^2-(\sqrt{2})^2 = 4\times 5-2 = 18$

(7) $\sqrt{48}+\dfrac{9}{\sqrt{3}} = 4\sqrt{3}+\dfrac{9\sqrt{3}}{\sqrt{3}\times\sqrt{3}}$

$= 4\sqrt{3}+\dfrac{9\sqrt{3}}{3} = 4\sqrt{3}+3\sqrt{3} = 7\sqrt{3}$

(8) $\sqrt{\dfrac{7}{3}}-\dfrac{42}{\sqrt{21}} = \dfrac{\sqrt{21}}{3}-\dfrac{42\sqrt{21}}{21}$

$= \dfrac{\sqrt{21}}{3}-2\sqrt{21} = -\dfrac{5\sqrt{21}}{3}$

(9) $\dfrac{2\sqrt{3}}{\sqrt{5}+\sqrt{3}}-3\sqrt{15} = \dfrac{2\sqrt{3}(\sqrt{5}-\sqrt{3})}{(\sqrt{5}+\sqrt{3})(\sqrt{5}-\sqrt{3})}-3\sqrt{15}$

$= \dfrac{2\sqrt{15}-6}{2}-3\sqrt{15} = \sqrt{15}-3-3\sqrt{15} = -2\sqrt{15}-3$

(10) $\left(\sqrt{\dfrac{1}{2}}+3\right)\left(\sqrt{\dfrac{1}{2}}+2\right)$

$= \left(\sqrt{\dfrac{1}{2}}\right)^2+5\sqrt{\dfrac{1}{2}}+3\cdot 2 = \dfrac{1}{2}+5\sqrt{\dfrac{1}{2}}+6$

(1) $-9\sqrt{6}$	(2) $\dfrac{5}{2}$	(3) $-\dfrac{9\sqrt{14}}{2}$	(4) $2\sqrt{6}$	(5) $-18+8\sqrt{3}$
(6) 18	(7) $7\sqrt{3}$	(8) $-\dfrac{5\sqrt{21}}{3}$	(9) $-2\sqrt{15}-3$	(10) $\dfrac{13+5\sqrt{2}}{2}$