Test Review Problems (Bingo)

① $\frac{4\sqrt{72}+\sqrt{18}}{\sqrt{7}} = \frac{4\sqrt[3]{9}\sqrt{8}+\sqrt[3]{9}\sqrt{2}}{\sqrt{7}} = \frac{12\sqrt{8}+3\sqrt{2}}{\sqrt{7}}$

$\frac{\sqrt{7}(12\sqrt{8}+3\sqrt{2})}{7} = \frac{12\sqrt{56}+3\sqrt{14}}{7} =$

$\frac{12\sqrt[2]{7}\sqrt{14}+3\sqrt{14}}{7} = \frac{24\sqrt{14}+3\sqrt{14}}{7} = \frac{27\sqrt{14}}{7}$

② $9\sqrt{2} - 3\sqrt{18}$

$9\sqrt{2} - 3\sqrt{9}\sqrt{2}$

$9\sqrt{2} - 9\sqrt{2}$

0

③ $-2\sqrt{10}\cdot 5\sqrt{6}$

$-10\sqrt{60}$

$-10\sqrt{4}\sqrt{15}$

$-20\sqrt{15}$

④ $\frac{3\sqrt{64}}{2} = \frac{3\cdot 8}{2} = \frac{24}{2} = 12$

⑤ $-2\sqrt{3}(3\sqrt{5}-4\sqrt{7})$

$-6\sqrt{15}+8\sqrt{21}$

(6) $5\sqrt{2} + 8\sqrt{5} - 8\sqrt{2}$

$-3\sqrt{2} + 8\sqrt{5}$

(7) $\sqrt{12} - 5\sqrt{3} + \sqrt{4}$

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

$2\sqrt{3} - 5\sqrt{3} + 2$

$-3\sqrt{3} + 2$

(8) $\frac{\sqrt{24}}{2\sqrt{9}} - \frac{2\sqrt{6}}{6}$

$\frac{1\sqrt{6}}{3}$ OR $\frac{\sqrt{6}}{3}$

(9) $5\sqrt{10}(3\sqrt{5} + 4\sqrt{20})$

$15\sqrt{50} + 20\sqrt{200}$

$15\sqrt{25}\sqrt{2} + 20\sqrt{100}\sqrt{2}$

$15 \cdot 5\sqrt{2} + 20 \cdot 10\sqrt{2}$

$75\sqrt{2} + 200\sqrt{2}$

$275\sqrt{2}$

(10) $\frac{\sqrt{13}+\sqrt{10}}{\sqrt{13}-\sqrt{5}} \cdot \frac{\sqrt{13}+\sqrt{5}}{\sqrt{13}+\sqrt{5}} = \frac{13+\sqrt{65}+\sqrt{130}+5\sqrt{2}}{13-5} = \frac{13+\sqrt{65}+\sqrt{130}+5\sqrt{2}}{8}$

$(\sqrt{13}+\sqrt{10})(\sqrt{13}+\sqrt{5})$

F O I L

$13 + \sqrt{65} + \sqrt{130} + \sqrt{50}$

$13 + \sqrt{65} + \sqrt{130} + \sqrt{2}\sqrt{25}$

(11) $\sqrt{\frac{27x^4}{48x}} = \frac{\sqrt{9}\sqrt{x^2}\sqrt{x}}{\sqrt{16}} = \frac{3x\sqrt{x}}{4}$

(12) $\frac{\sqrt{3}-3}{\sqrt{3}+3} \cdot \frac{\sqrt{3}-3}{\sqrt{3}-3} = \frac{12-6\sqrt{3}}{3-9} = \frac{12-6\sqrt{3}}{-6} = \frac{2-\sqrt{3}}{-1}$

or $-2+\sqrt{3}$

F O I L

$\sqrt{9} - 3\sqrt{3} - 3\sqrt{3} + 9$

$3 - 3\sqrt{3} - 3\sqrt{3} + 9$

$12 - 6\sqrt{3}$

(13) $(3\sqrt{2} - 2\sqrt{5})(4\sqrt{2} + 2\sqrt{5})$ $4 - 2\sqrt{10}$

F O I L

$12\sqrt{4} + 6\sqrt{10} - 8\sqrt{10} - 4\sqrt{25}$

$12 \cdot 2 \qquad -4 \cdot 5$

$24 \quad -2\sqrt{10} \quad -20$

(14) $(2\sqrt{x} = \sqrt{3x+1})^2$

$4x = 3x + 1$

$-3x \quad -3x$

$x = 1$