9.3 p570

(1) $8\sqrt{3}+5\sqrt{3}=\boxed{13\sqrt{3}}$ (3) $17\sqrt{6}-2\sqrt{6}=\boxed{15\sqrt{6}}$

(5) $3\sqrt{13}-8\sqrt{13}=\boxed{-5\sqrt{13}}$ (7) $12\sqrt{x}+3\sqrt{x}=\boxed{15\sqrt{x}}$

(9) $70\sqrt{y}-76\sqrt{y}=\boxed{-6\sqrt{y}}$ (11) $7\sqrt{10x}+2\sqrt{10x}=\boxed{9\sqrt{10x}}$

(13) $7\sqrt{5y}-\sqrt{5y}=\boxed{6\sqrt{5y}}$ (15) $\sqrt{5}+\sqrt{5}=\boxed{2\sqrt{5}}$

(17) $4\sqrt{2}+3\sqrt{2}+5\sqrt{2}=\boxed{12\sqrt{2}}$ (19) $4\sqrt{7}-5\sqrt{7}+8\sqrt{7}=\boxed{7\sqrt{7}}$

(21) $4\sqrt{11}-6\sqrt{11}+2\sqrt{11}=0$ (23) $\sqrt{5}+\sqrt{20}=\sqrt{5}+2\sqrt{5}$
$=\boxed{3\sqrt{5}}$

(25) $\sqrt{8}-\sqrt{2}=2\sqrt{2}-\sqrt{2}$
$=\boxed{\sqrt{2}}$

(27) $\sqrt{50}+\sqrt{18}=5\sqrt{2}+3\sqrt{2}$
$=\boxed{8\sqrt{2}}$

(29) $7\sqrt{12}+\sqrt{75}=14\sqrt{3}+5\sqrt{3}$
$=\boxed{19\sqrt{3}}$

(31) $3\sqrt{27}-2\sqrt{18}=\boxed{9\sqrt{3}-6\sqrt{}}$

(33) $2\sqrt{45x}-2\sqrt{20x}=6\sqrt{5x}-4\sqrt{5x}$
$=\boxed{2\sqrt{5x}}$

(35) $\sqrt{8}+\sqrt{16}+\sqrt{18}+\sqrt{25}$
$=2\sqrt{2}+4+3\sqrt{2}+5$
$=\boxed{9+5\sqrt{2}}$

(37) $\sqrt{2}+\sqrt{11}=\boxed{\sqrt{2}+\sqrt{11}}$

(39) $2\sqrt{80}+3\sqrt{75}=$
$2\sqrt{16\cdot5}+3\sqrt{25\cdot3}$
$=\boxed{8\sqrt{5}+15\sqrt{3}}$

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(41) $3\sqrt{54} - 2\sqrt{20} + 4\sqrt{45} - \sqrt{24} = 3\sqrt{9\cdot6} - 2\sqrt{4\cdot5} + 4\sqrt{9\cdot5} - \sqrt{4\cdot6}$

$= 9\sqrt{6} - 4\sqrt{5} + 12\sqrt{5} - 2\sqrt{6}$

$= \boxed{7\sqrt{6} + 8\sqrt{5}}$

(43) $\sqrt{2}(\sqrt{3}+\sqrt{5}) = \boxed{\sqrt{6}+\sqrt{10}}$

(45) $\sqrt{7}(\sqrt{6}-\sqrt{10}) = \boxed{\sqrt{42}-\sqrt{70}}$

(47) $\sqrt{3}(\sqrt{5}+\sqrt{3}) = \boxed{5\sqrt{3}+3}$

(49) $\sqrt{3}(\sqrt{6}-\sqrt{3}) = \sqrt{18}-3$

$= \boxed{3\sqrt{2}-3}$

(51) $(5+\sqrt{2})(6+\sqrt{2}) = 30 + 5\sqrt{2} + 6\sqrt{2} + \sqrt{4}$

$= 30 + 11\sqrt{2} + 2$

$= \boxed{32 + 11\sqrt{2}}$

(53) $(4+\sqrt{5})(10-3\sqrt{5}) = 40 - 12\sqrt{5} + 10\sqrt{5} - 3\sqrt{25}$

$= 40 - 2\sqrt{5} - 15$

$= \boxed{25 - 2\sqrt{5}}$

(55) $(6-3\sqrt{7})(2-5\sqrt{7}) = 12 - 30\sqrt{7} - 6\sqrt{7} + 15\sqrt{49}$

$= 12 - 36\sqrt{7} + 15\cdot7$

$= 12 - 36\sqrt{7} + 105$

$= \boxed{117 - 36\sqrt{7}}$

(57) $(\sqrt{10}-3)(\sqrt{10}-5) = \sqrt{100} - 5\sqrt{10} - 3\sqrt{10} + 15$

$= 10 - 8\sqrt{10} + 15$

$= \boxed{25 - 8\sqrt{10}}$

(59) $(\sqrt{3}+\sqrt{6})(\sqrt{3}+2\sqrt{6}) = \sqrt{9} + 2\sqrt{18} + \sqrt{18} + 2\sqrt{36}$

$= 3 + 3\sqrt{18} + 12$

$= 15 + 3\sqrt{9 \cdot 2}$

$= \boxed{15 + 9\sqrt{2}}$

(61) $(\sqrt{2}+1)(\sqrt{3}-6) = \boxed{\sqrt{6} - 6\sqrt{2} + \sqrt{3} - 6}$

(63) $(3+\sqrt{5})(3-\sqrt{5}) = 3^2 - \sqrt{25}$

$= 9 - 5$

$= \boxed{4}$

(65) $(1-\sqrt{6})(1+\sqrt{6}) = 1 - \sqrt{36}$

$= 1 - 6$

$= \boxed{-5}$

(67) $(\sqrt{11}+5)(\sqrt{11}-5)$

$= \sqrt{121} - 25$

$= 11 - 5$

$= \boxed{6}$

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(69) $(\sqrt{7}-\sqrt{5})(\sqrt{7}+\sqrt{5}) = 7-5$

$= \boxed{2}$

(71) $(2\sqrt{3}+7)(2\sqrt{3}-7)$

$= 4 \cdot 3 - 49$

$= 12 - 49$

$= \boxed{-37}$

(73) $(2\sqrt{3}+\sqrt{5})(2\sqrt{3}-\sqrt{5}) = 4 \cdot 3 - 5$

$= 12 - 5$

$= \boxed{7}$

(75) $(\sqrt{2}+\sqrt{3})^2 = (\sqrt{2}+\sqrt{3})(\sqrt{2}+\sqrt{3})$

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

$= \boxed{5 + 2\sqrt{6}}$

(77) $(\sqrt{x}-\sqrt{10})^2 = (\sqrt{x}-\sqrt{10})(\sqrt{x}-\sqrt{10})$

$= \boxed{x - 2\sqrt{10x} + 10}$

(79) $5\sqrt{27x^3} - 3x\sqrt{12x}$

$= 5\sqrt{(3x)^2 \cdot 3x} - 3x\sqrt{2^2 \cdot 3x}$

$= 5 \cdot 3x\sqrt{3x} - 3x \cdot 2\sqrt{3x}$

$= 15x\sqrt{3x} - 6x\sqrt{3x}$

$= \boxed{9x\sqrt{3x}}$

(81) $6y^2\sqrt{x^5y} + 2x^2\sqrt{xy^5}$

$= 6y^2\sqrt{(x^2)^2xy} + 2x^2\sqrt{(y^2)^2xy}$

$= 6y^2x^2\sqrt{xy} + 2x^2y^2\sqrt{xy}$

$= 6x^2y^2\sqrt{xy} + 2x^2y^2\sqrt{xy}$

$= \boxed{8x^2y^2\sqrt{xy}}$

(83) $3\sqrt[3]{54} - 4\sqrt[3]{16}$

$= 3\sqrt[3]{3^3 \cdot 2} - 4\sqrt[3]{2^3 \cdot 2}$

$= 3 \cdot 3\sqrt[3]{2} - 4 \cdot 2\sqrt[3]{2}$

$= 9\sqrt[3]{2} - 8\sqrt[3]{2}$

$= \boxed{\sqrt[3]{2}}$

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(85) $x\sqrt[3]{32x} + 9\sqrt[3]{4x^4} = x\sqrt[3]{2^3 \cdot 4x} + 9\sqrt[3]{x^3 \cdot 4x}$

$= 2x\sqrt[3]{4x} + 9x\sqrt[3]{4x}$

$= \boxed{11x\sqrt[3]{4x}}$