中学３年数学α春課題考査　　組　　番氏名　　(15/04/10)

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(1)$\sqrt{18}$ $= 3\sqrt{2}$

(2)$\sqrt{50}-\frac{7}{\sqrt{2}}$ $= 5\sqrt{2}-\frac{7}{2}\sqrt{2} = \frac{3}{2}\sqrt{2}$

(3)$\frac{1}{\sqrt{2}}$ $= \frac{\sqrt{2}}{\sqrt{2}\times\sqrt{2}} = \frac{\sqrt{2}}{2}$

(4)$\sqrt{3}-\sqrt{12}$ $= \sqrt{3}-2\sqrt{3} = -\sqrt{3}$

(5)$\frac{3}{5\sqrt{15}}$ $= \frac{3\sqrt{15}}{5\sqrt{15}\times\sqrt{15}} = \frac{3\sqrt{15}}{5\times15} = \frac{\sqrt{15}}{25}$

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

(7)$\frac{2\sqrt{27}}{3\sqrt{40}}$ $= \frac{2\times3\sqrt{3}}{3\times2\sqrt{10}} = \frac{\sqrt{3}}{\sqrt{10}} = \frac{\sqrt{30}}{10}$

(8)$\frac{2\sqrt{10}}{5}-\frac{\sqrt{10}}{4}$ $= \frac{2}{5}\sqrt{10}-\frac{1}{4}\sqrt{10} = \frac{3}{20}\sqrt{10}$

(9)$\sqrt{5}\times\sqrt{10}$ $= 5\sqrt{2}$

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

(11)$\sqrt{24}\div\sqrt{3}$ $= \sqrt{8} = 2\sqrt{2}$

(12)$\sqrt{12}\times\sqrt{10}\times\sqrt{8}$
$= 2\sqrt{3}\times\sqrt{10}\times2\sqrt{2} = 4\sqrt{60} = 8\sqrt{15}$

(13)$\sqrt{32}\div(-4\sqrt{6})\div2\sqrt{5}$
$= 4\sqrt{2}\div(-4\sqrt{6})\div2\sqrt{5}$
$= 4\times\left(-\frac{1}{4\sqrt{6}}\right)\times\frac{1}{2\sqrt{5}} = -\frac{1}{2\sqrt{30}} = -\frac{\sqrt{30}}{60}$

(14)$\sqrt{18}\div\frac{\sqrt{32}}{\sqrt{6}}\times\frac{4}{\sqrt{10}}$
$= 3\sqrt{2}\times\frac{\sqrt{6}}{4\sqrt{2}}\times\frac{4}{\sqrt{10}} = \frac{3\sqrt{3}}{\sqrt{5}} = \frac{3}{5}\sqrt{15}$

(15)$\sqrt{10}-2\sqrt{40}-\sqrt{90}$
$= \sqrt{10}-4\sqrt{10}-3\sqrt{10}$
$= -6\sqrt{10}$

(16)$\sqrt{6}(\frac{2}{\sqrt{3}}-\frac{1}{\sqrt{2}})$ $= 2\sqrt{2}-\sqrt{3}$

(17)$(\sqrt{27}-\sqrt{6})\div\sqrt{3}$
$= (3\sqrt{3}-\sqrt{6})\div\sqrt{3}$
$= 3-\sqrt{2}$

(18)$(6-\frac{3}{\sqrt{2}})\div\frac{\sqrt{6}}{3}$
$= (6-\frac{3}{\sqrt{2}})\times\frac{3}{\sqrt{6}}$
$= 3\sqrt{6}-\frac{9\sqrt{2}}{\sqrt{6}} = 3\sqrt{6}-\frac{3}{2}\sqrt{3}$

(19)$\sqrt{2}(\sqrt{5}-3)+\sqrt{18}$
$= \sqrt{10}-3\sqrt{2}+3\sqrt{2}$
$= \sqrt{10}$

(20)$\frac{3}{\sqrt{3}}-\sqrt{6}(\frac{1}{\sqrt{10}}+\sqrt{2})$
$= \sqrt{3}-\frac{\sqrt{6}}{\sqrt{5}}-2\sqrt{3} = -\sqrt{3}-\frac{1}{5}\sqrt{15}$

(21)$(\sqrt{8}-6)\div\sqrt{3}+\sqrt{3}$
$= (2\sqrt{2}-6)\div\sqrt{3}+\sqrt{3}$
$= \frac{2\sqrt{2}}{\sqrt{3}}-2\sqrt{3}+\sqrt{3} = \frac{2}{3}\sqrt{6}-\sqrt{3}$

(22)$\frac{\sqrt{10}-\sqrt{18}}{\sqrt{2}}$
$= \sqrt{5}-\sqrt{9} = \sqrt{5}-3$

(23)$\frac{\sqrt{3}-\sqrt{15}}{\sqrt{5}}-\frac{\sqrt{15}}{4}$
$= \frac{\sqrt{15}}{5}-\sqrt{3}-\frac{1}{4}\sqrt{15} = -\frac{1}{20}\sqrt{15}-\sqrt{3}$

(24)$\sqrt{27}-\frac{6}{\sqrt{3}}-3\sqrt{12}$
$= 3\sqrt{3}-2\sqrt{3}-6\sqrt{3}$
$= -5\sqrt{3}$

(25)$\sqrt{125}-\frac{2\sqrt{10}}{\sqrt{2}}-\frac{10}{\sqrt{5}}+9\sqrt{5}$
$= 5\sqrt{5}-2\sqrt{5}-2\sqrt{5}+9\sqrt{5}$
$= 10\sqrt{5}$

(26)$(\frac{8}{\sqrt{3}}-\frac{3}{\sqrt{2}})\div\sqrt{6}$
$= (\frac{8}{\sqrt{3}}-\frac{3}{\sqrt{2}})\times\frac{1}{\sqrt{6}} = \frac{4\sqrt{2}}{3\sqrt{2}}-\frac{3\sqrt{3}}{3\sqrt{6}} = \frac{4}{3}\sqrt{2}-\frac{1}{3}\sqrt{3}$

(27)$\frac{\sqrt{12}}{4}-\frac{1}{3\sqrt{6}}+\frac{\sqrt{2}}{4\sqrt{3}}$
$= \frac{2\sqrt{3}}{4}-\frac{\sqrt{6}}{18}+\frac{\sqrt{6}}{12}$
$= \frac{\sqrt{3}}{2}+\frac{\sqrt{6}}{36}$

2 2 次方程式を解きなさい。

(1) $(x-1)^2=2$

$x-1=\pm\sqrt{2}$

$x=1\pm\sqrt{2}$

(2) $3(x-5)^2=48$

$(x-5)^2=16$

$x-5=\pm 4$

$x=5\pm 4$

$x=9,\ 1$

(3) $x^2+4x=2$

$x^2+4x-2=0$

$x=-2\pm\sqrt{4+2}$

$x=-2\pm\sqrt{6}$

(4) $x^2-5x+2=0$

$x=\dfrac{5\pm\sqrt{25-8}}{2}$

$x=\dfrac{5\pm\sqrt{17}}{2}$

(5) $5x^2-8x-2=0$

$x=\dfrac{4\pm\sqrt{16+10}}{5}$

$x=\dfrac{4\pm\sqrt{26}}{5}$

(6) $x^2+3x-54=0$

$(x+9)(x-6)=0$

$x=-9,\ 6$

(7) $x+1=2x(x+1)$

$x+1=2x^2+2x$

$2x^2+x-1=0$

$(x+1)(2x-1)=0$

$x=-1,\ \dfrac{1}{2}$

(8) $x^2-4x+1=0$

$x=2\pm\sqrt{4-1}$

$x=2\pm\sqrt{3}$

(9) $x^2+x-1=0$

$x=\dfrac{-1\pm\sqrt{1+4}}{2}$

$x=\dfrac{-1\pm\sqrt{5}}{2}$

(10) $4x^2-5x-3=0$

$x=\dfrac{5\pm\sqrt{25+48}}{8}$

$x=\dfrac{5\pm\sqrt{73}}{8}$

(11) $x^2+5x=0$

$x(x+5)=0$

$x=0,\ -5$

(12) $2x^2-4x-30=0$

$x^2-2x-15=0$

$(x-5)(x+3)=0$

$x=5,\ -3$

(13) $4x^2+5x-6=0$

$4\quad -3\quad -3$

$1\quad 3\quad 2$

$4\quad -6\quad 5$

$(4x-3)(x+2)=0$

$x=\dfrac{3}{4},\ -2$

(14) $3x^2-x-4=0$

$3\quad -4\quad -4$

$1\quad 1\quad 3$

$3\quad -4\quad -1$

$(3x-4)(x+1)=0$

$x=\dfrac{4}{3},\ -1$