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中２数学　計算

1 次の計算をしなさい。

□(1) $\sqrt{5}\div\sqrt{10}\times\sqrt{6}$ $\sqrt{3}$ (淑徳学園)

□(2) $\frac{\sqrt{98}}{\sqrt{3}}\div\sqrt{\frac{14}{243}}\times\frac{\sqrt{8}}{\sqrt{7}}$ $18\sqrt{2}$ (桐光学園)

□(3) $\frac{2}{\sqrt{15}}\div\frac{\sqrt{35}}{5}\times\frac{\sqrt{14}}{4}$ (東京家政大附女子) $\frac{\sqrt{6}}{6}$

□(4) $\left(-\frac{\sqrt{2}}{3}\right)^5\div\sqrt{450}\times(-0.5)^4\div\left(-\frac{1}{\sqrt{3}}\right)^{10}$ (大阪星光学院) $-\frac{1}{60}$

□(5) $\frac{\sqrt{75}}{2}-\sqrt{12}+\sqrt{\frac{27}{4}}$ $2\sqrt{3}$ (佼成学園女子)

□(6) $7\sqrt{3}-\frac{9}{\sqrt{3}}$ $4\sqrt{3}$ (桜美林)

□(7) $-\sqrt{27}+\frac{4}{\sqrt{8}}-\frac{10\sqrt{3}}{\sqrt{6}}+\frac{18}{\sqrt{3}}$ (芝浦工業大) $3\sqrt{3}-4\sqrt{2}$

□(8) $\frac{3\sqrt{8}}{\sqrt{3}}-\sqrt{60}\div2\sqrt{5}\times\sqrt{18}$ $-\sqrt{2}$ (岩倉)

(1) $\frac{\sqrt{5}\times\sqrt{6}\times3}{\sqrt{10}\times2}=\sqrt{3}$

(2) $\frac{\sqrt{18}\times\sqrt{3}\times\sqrt{8}}{\sqrt{2}\times\sqrt{15}\times\sqrt{5}}$

$=9\times2\sqrt{2}=18\sqrt{2}$

(3) $\frac{2\times\sqrt{5}\times\sqrt{14}\times\sqrt{2}}{\sqrt{15}\times\sqrt{35}\times4\times2}$

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

(4) $-\frac{4\sqrt{2}}{x^6}\times\frac{1}{15\sqrt{2}}\times\frac{1}{16x^4}\times\frac{x^6}{1}$

$=-\frac{1}{60}$

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

$=-2\sqrt{3}+4\sqrt{3}$

$=2\sqrt{3}$

(6) $7\sqrt{3}-3\sqrt{3}$

$=4\sqrt{3}$

(7) $-3\sqrt{3}+\frac{4\sqrt{2}}{2\sqrt{2}}-\frac{10}{\sqrt{2}}+6\sqrt{3}$

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

$=3\sqrt{3}-4\sqrt{2}$

(8) $\frac{6\sqrt{2}}{\sqrt{3}}-2\sqrt{3}\times\frac{1}{2\sqrt{3}}\times3\sqrt{2}$

$=2\sqrt{6}-\sqrt{3}\times3\sqrt{2}$

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

2 次の計算をしなさい。

□(1) $(-2x^2)^3\div\left(-\frac{2}{3}x\right)^2\div(3x^2)^2$ (東京家政大附女子)

$=-8x^6\times\frac{9}{4x^2}\times\frac{1}{9x^4}=-2$

□(2) $\left(-\frac{3}{4}x^2y\right)^2\times4xyz^3\div\left(-\frac{1}{2}x^2yz\right)^2$ (青雲)

$=\frac{9x^4y^2}{16}\times4xyz^3\times\frac{4}{x^4y^2z^2}=\frac{9x^5y^3z^3}{x^4y^2z^2}=9xyz$

□(3) $4x^3y^2\div(-0.2x^3y^2)^3\times\left(-\frac{1}{10}x^2y\right)^2$ (高知学芸)

$=-4x^3y^2\div\left(\frac{1}{5}x^3y^2\right)^3\times\left(\frac{1}{10}x^2y\right)^2$

$=-\frac{2\cdot4x^3y^2\times5^5\times x^4y^2}{x^9y^6\times10\times10^2}$

$=-\frac{5x^7y^4}{x^9y^6}=-\frac{5}{x^2y^2}$

3 次の２次方程式を解け。 → xの解を出す!!

□(1) $(x-1)^2-9=0$ (熊本)

$(x-1)^2=9$
$x-1=\pm 3$
$x=4,\ -2$

□(2) $x^2+4x=12$ (高知)

$x^2+4x-12=0$
$(x+6)(x-4)=0$
$x=2,\ -6$

□(3) $x^2-3x-1=0$ (国立高専)

$x=\frac{3\pm\sqrt{13}}{2}$

□(4) $x^2-2x-1=0$ (駿台甲府)

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

□(5) $3x^2-7x-4=0$ (洛星)

$x=\frac{7\pm\sqrt{97}}{6}$

□(6) $\frac{x^2}{3}=\frac{x+1}{2}$ (淑徳学園)

$x=\frac{3\pm\sqrt{33}}{4}$

□(7) $(3x-1)^2=5x^2+3$ (桐朋)

$9x^2-6x+1=5x^2+3$
$4x^2-6x-2=0$
$\div 2$
$2x^2-3x-1=0$
$x=\frac{3\pm\sqrt{17}}{4}$

□(8) $(2x+1)^2-(x+1)(x-2)=5$ (市川)

$3x^2+5x-2=0$
$(3x-1)(x+2)=0$
$x=\frac{1}{3},\ -2$

3	−2	5
3 ×	−1	−1
1	2	6

4 次の２次方程式を解け。

□(1) $(2x+1)^2=3(2x+1)$ (北豊島)

□(2) $(x+2)^2+2=3(x+2)$ (東海大附浦安)

□(3) $(x-1)^2-\frac{5}{6}(x-1)+\frac{1}{6}=0$ (東京工業)

(1) $(2x+1)^2=3(2x+1)$
$M^2=3M$
$M^2-3M=0$
$M(M-3)=0$
$(2x+1)(2x-2)=0$
$x=-\frac{1}{2},\ 1$

(2) $M^2+2=3M$
$M^2-3M+2=0$
$(M-2)(M-1)=0$
$x(x+1)=0$
$x=0,\ -1$

(3) $M^2-\frac{5}{6}M+\frac{1}{6}=0$
$6M^2-5M+1=0$
$(2M-1)(3M-1)=0$
$\{2(x-1)-1\}\{3(x-1)-1\}=0$
$(2x-3)(3x-4)=0$
$x=\frac{3}{2},\ \frac{4}{3}$

6	1	−5
2 ×	−1	−3
3	−1	−2

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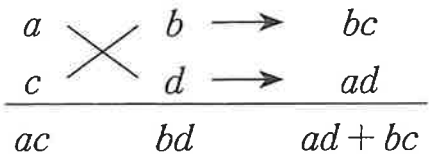
中２数学　因数分解　たすきがけ

名前

$$acx^2+(ad+bc)x+bd=(ax+b)(cx+d)$$



次の式を因数分解しなさい。

□(1)　$2x^2+3x-2$
$(x+2)(2x-1)$

□(2)　$3x^2+7x-6$
$(x+3)(3x-2)$

□(3)　$2x^2-7x+5$
$(x-1)(2x-5)$

□(4)　$6x^2+7x+2$
$(2x+1)(3x+2)$

□(5)　$8x^2+2x-1$
$(2x+1)(4x-1)$

□(6)　$15x^2-7x-2$
$(3x-2)(5x+1)$

□(7)　$6x^2-13x+6$
$(2x-3)(3x-2)$

□(8)　$12x^2+11x+2$
$(3x+2)(4x+1)$

□(9)　$5x^2+13x-6$
$(x+3)(5x-2)$

□(10)　$3x^2+2xy-8y^2$
$(x+2y)(3x-4y)$

□(11)　$2x^2-11xy+5y^2$
$(x-5y)(2x-y)$

□(12)　$3x^2+7xy-6y^2$
$(x+3y)(3x-2y)$

□(13)　$3a^2-5ab-12b^2$
$(a-3b)(3a+4b)$

□(14)　$6a^2+7ab-20b^2$
$(2a+5b)(3a-4b)$

□(15)　$5a^2t^2-14at-3$
$(at-3)(5at+1)$