មេរៀនសង្ខេប និង លំហាត់មេរៀន

ថ្នាក់ទី ៩

ខែម ពុទ្ធី

មាតិកា

១. ចំនួនអសនិទាន

១.១ ឫសការេ

ជាទូទៅ ១ $a>0,\quad x^2=a \;\; x=\sqrt{a} \;\; x=-\sqrt{a}$

១.២ ឫសគូប

ជាទូទៅ ២ $x^3=a \;\; x=\sqrt[3]{a},\quad a$

១.៣ ប្រមាណវិធីលើរ៉ាឌីកាល់

១.៣.១ វិធីគុណ

ជាទូទៅ ៣

. $\sqrt{a}\cdot\sqrt{b}=\sqrt{ab},\quad a\geq 0, b\geq 0$

. $\sqrt[3]{a}\cdot\sqrt[3]{b}=\sqrt[3]{ab}\quad a,b$

១.៣.២ វិធីចែក

ជាទូទៅ ៤

. $\frac{\sqrt{a}}{\sqrt{b}} = \sqrt{\frac{a}{b}}, \quad a \geq 0, b > 0$

. $\frac{\sqrt[3]{a}}{\sqrt[3]{b}} = \sqrt[3]{\frac{a}{b}}, \quad , b \neq 0$

១.៣.៣ ការបញ្ចេញមួយចំនួនពីក្នុងរ៉ាឌីកាល់

ជាទូទៅ ៥

១.៣.៤ ការបញ្ចូលមួយចំនួនទៅក្នុងរ៉ាឌីកាល់

ជាទូទៅ ៦

១.៣.៥ វិធីបូក និង វិធីដក

ជាទូទៅ ៧ -

ផ្នែកលំហាត់មានដំណោះស្រាយ

. x $2x+3=5$

. $x=1$. $x=-1$. $x=2$. $x=-2$

. x $-2x+3=5$

. $x=1$. $x=-1$. $x=2$. $x=-2$

. x $(x+1)(x+2)=x^2+5$

. $x=1$. $x=-1$. $x=2$. $x=-2$

. $A=x^2-4$

. $A=(x+2)^2$. $A=(x+2)(x+2)$

. $A=(x-2)^2$. $A=(x-2)(x+2)$

. $x^2-4=0$

. $x=-4$. $x=4$. $x=2$. $x=-2$

. x $x^2=25$

. $x=-\sqrt{5}$. $x=\sqrt{5}$. $x=5$. $x=-5$

. x $x^2=49$

. $x=-\sqrt{7}$. $x=\sqrt{7}$. $x=7$. $x=-7$

. $A=\sqrt{64}$

. $x=-8,8$. $x=-8$. $x=8$. $x=4$

. $A=-\sqrt{64}$

. $x=-8,8$. $x=-8$. $x=8$. $x=4$

. $A=\sqrt{\left(1-\sqrt{3}\right)^2}$

. $x=1-\sqrt{3}$. $x=-1-\sqrt{3}$. $x=1+\sqrt{3}$. $x=-1+\sqrt{3}$

. $x^2=0$

. $x=2$. $x=-2$. $x=0$. $x=-1$

. $x^2=-4$

. $x=2$.

. $x=-2$.

. $x^2=\dfrac{25}{4}$

. $x=-2$. $x=-5$. $x=-\dfrac{5}{2}$. $x=\pm\dfrac{5}{2}$

. $x^2-1=80$

. $x=-9$. $x=-8$. $x=\pm9$. $x=\pm8$

. $x^2=0.01$

. $x=0.001$. $x=-0.001$. $x=\pm0.1$. $x=\pm0.2$

. $x^2=\dfrac{1}{36}$

. $x=-6$. $x=6$. $x=\dfrac{1}{6}$. $x=\pm\dfrac{1}{6}$

. $x^2=3$

. $x=-3$. $x=3$. $x=\sqrt{3}$. $x=\pm\sqrt{3}$

. $x^2=625$

. $x=-15$. $x=\pm 15$. $x=-25$. $x=\pm 25$

. $x^2=-1225$

. $x=-35$. $x=35$. $x=\pm\sqrt{-1225}$.

. $x^2=-225$

. $x=-15$. $x=15$. $x=\pm\sqrt{-1225}$.

. 8

. 2×4 . 1×8 . $2\times 2\times 3$. $2\times 2\times 2$

. 210

. 21×10 . 42×5 . $21\times 2\times 5$. $2\times 3\times 5\times 7$

. 32

. 16×2 . 8×4 . 2^5+1 . 2^5

. 250

. 25×10 . 125×2 . 50×5 . 2×5^3

. 54

. 27×2 . 9×6 . 18×3 . 2×3^3

. x $x^3=8$

. $x=-2$. $x=2$. $x=\pm 2$. x

. x $x^3=27$

. $x=-3$. $x=3$. $x=\pm 3$. $x=0$

. x $x^3=-27$

. $x=-3$. $x=3$. $x=\pm 3$. $x=0$

. x $x^3=64$

. $x=4$. $x=-4$. $x=\pm 4$. $x=\pm 8$

. x $x^3=125$

. $x=15$. $x=-15$. $x=\pm 5$. $x=5$

. x $x^3+125=0$

. $x=15$. $x=-15$. $x=-5$. $x=5$

. x $x^3-1=215$

. $x=16$. $x=-16$. $x=-6$. $x=6$

. x $x^3=-216$

. $x=16$. $x=-16$. $x=-6$. $x=6$

. x $x^3=\frac{1}{8}$

. $x=\frac{1}{2}$. $x=-\frac{1}{2}$. $x=-2$. $x=2$

. x $x^3=0.008$

. $x=\frac{1}{2}$. $x=-\frac{1}{2}$. $x=-0.2$. $x=0.2$

. x $x^3=0.125$

. $x=\frac{1}{5}$. $x=-\frac{1}{5}$. $x=-0.5$. $x=0.5$

. x $x^3=-0.216$

. $x=\frac{1}{6}$. $x=-\frac{1}{6}$. $x=-0.6$. $x=0.6$

. x $x^3 = 9$

. $x = 3$. $x = -3$. $x = \sqrt{3}$. $x = \sqrt[3]{9}$

. x $x^3 = 1331$

. $x = 121$. $x = -11$. $x = 11$. $x = -121$

. $1m$

. $100l$. $100m^3$. $10l$. $1000l$

. n $\sqrt[3]{32n}$

. $n = 1$. $n = 2$. $n = 3$. $n = 4$

. $A = \sqrt{2} \times \sqrt{8}$

. $A = 2$. $A = 3$. $A = 4$. $A = 5$

. $A = \sqrt{3} \times \sqrt{27}$

. $A = -9$. $A = 3$. $A = 9$. $A = 5$

. $A = \sqrt[3]{2} \times \sqrt[3]{8}$

. $A = 2$. $A = 3$. $A = 4$. $A = 5$

. $A = \sqrt[3]{2} \times \sqrt[3]{\dfrac{1}{16}}$

. $A = 2$. $A = \dfrac{1}{2}$. $A = 4$. $A = -\dfrac{1}{2}$

. $A = \sqrt{2} \times \sqrt{32}$

. $A = -9$. $A = 3$. $A = 9$. $A = 5$

. $A = \sqrt{50} \times \sqrt{2}$

. $A=-9$. $A=3$. $A=9$. $A=10$

. $A=\sqrt{0.1}\times\sqrt{10}$

. $A=-1$. $A=1$. $A=-2$. $A=2$

. $A=\sqrt[3]{0.1}\times\sqrt[3]{10}$

. $A=-1$. $A=1$. $A=-2$. $A=2$

. $A=\dfrac{\sqrt{8}}{\sqrt{2}}$

. $A=-1$. $A=1$. $A=-2$. $A=2$

. $A=\dfrac{\sqrt{288}}{\sqrt{2}}$

. $A=10$. $A=12$. $A=-12$. $A=22$

. $A=\dfrac{\sqrt{27}}{\sqrt{3}}$

. $A=-3$. $A=3$. $A=-4$. $A=4$

. $A=\dfrac{\sqrt{10}}{\sqrt{0.1}}$

. $A=-10$. $A=10$. $A=-2$. $A=2$

. $A=\dfrac{\sqrt[3]{48}}{\sqrt[3]{6}}$

. $A=-10$. $A=10$. $A=-2$. $A=2$

. $A=\dfrac{\sqrt[3]{16}}{\sqrt[3]{2}}$

. $A=-10$. $A=10$. $A=-2$. $A=2$

. $A=\dfrac{\sqrt[3]{25}}{\sqrt[3]{0.2}}$

. $A=-5$. $A=5$. $A=-2$. $A=2$

. $A=\dfrac{\sqrt[3]{\frac{1}{2}}}{\sqrt[3]{4}}$

. $A=-\frac{1}{2}$. $A=\frac{1}{2}$. $A=-2$. $A=2$

. $A=\frac{\sqrt[3]{100}}{\sqrt[3]{0.1}}$

. $A=-\frac{1}{10}$. $A=\frac{1}{10}$. $A=-10$. $A=10$

. $A=\frac{\sqrt{7}}{\sqrt{28}}$

. $A=-\frac{1}{2}$. $A=\frac{1}{2}$. $A=-2$. $A=2$

. $A=\frac{\sqrt[3]{128}}{\sqrt[3]{2}}$

. $A=-\frac{1}{4}$. $A=\frac{1}{4}$. $A=-4$. $A=4$

. $A=\sqrt{\frac{2}{8}}$

. $A=-\frac{1}{2}$. $A=\frac{1}{2}$. $A=-2$. $A=2$

. $A=\sqrt[3]{\frac{81}{3}}$

. $A=-\frac{1}{3}$. $A=\frac{1}{3}$. $A=-3$. $A=3$

. $A=\sqrt{12}$

. $A=-3\sqrt{3}$. $A=3\sqrt{2}$. $A=-2\sqrt{3}$. $A=2\sqrt{3}$

. $A=\sqrt[3]{81}$

. $A=3\sqrt{3}$. $A=3\sqrt[3]{3}$. $A=-2\sqrt[3]{3}$. $A=2\sqrt[3]{3}$

. $A=\sqrt{50}$

. $A=4\sqrt{2}$. $A=-5\sqrt{2}$. $A=5\sqrt{2}$. $A=-5\sqrt{3}$

. $A=\sqrt{\frac{2}{25}}$

. $A=\dfrac{2}{5}$. $A=\dfrac{\sqrt{2}}{5}$. $A=-\dfrac{\sqrt{2}}{5}$. $A=-\dfrac{2}{5}$

. $A=\dfrac{2}{3}\sqrt{\dfrac{12}{5}}$

. $A=\sqrt{\dfrac{16}{15}}$. $A=\sqrt{\dfrac{25}{16}}$. $A=-\sqrt{\dfrac{16}{15}}$. $A=\sqrt{\dfrac{8}{15}}$

. $A=5\sqrt{\dfrac{3}{50}}$

. $A=\sqrt{\dfrac{3}{4}}$. $A=\sqrt{\dfrac{3}{25}}$. $A=\sqrt{\dfrac{3}{2}}$. $A=\sqrt{\dfrac{6}{25}}$

. $A=-7\sqrt{5}$

. $A=\sqrt{245}$. $A=\sqrt{235}$. $A=\sqrt{225}$. $A=\sqrt{215}$

. $A=-5\sqrt[3]{\dfrac{4}{25}}$

. $A=-\sqrt[3]{10}$. $A=-\sqrt[3]{20}$. $A=\sqrt[3]{10}$. $A=\sqrt[3]{20}$

. $A=-2\sqrt[3]{\dfrac{5}{12}}$

. $A=-\sqrt[3]{\dfrac{10}{3}}$. $A=\sqrt[3]{\dfrac{10}{3}}$. $A=-\sqrt[3]{\dfrac{10}{7}}$. $A=\sqrt[3]{\dfrac{10}{13}}$

. $A=\dfrac{1}{2}\sqrt[3]{4}$

. $A=-\sqrt[3]{\dfrac{1}{2}}$. $A=\sqrt[3]{\dfrac{1}{2}}$. $A=-\sqrt[3]{\dfrac{2}{3}}$. $A=\sqrt[3]{\dfrac{3}{2}}$

. $A=3\sqrt{11}+5\sqrt{44}-3\sqrt{99}$

. $A=2\sqrt{11}$. $A=-2\sqrt{11}$. $A=3\sqrt{11}$. $A=4\sqrt{11}$

. $A=3\sqrt{18}-\sqrt{12}+\sqrt{75}+\sqrt{2}$

. $A=10\sqrt{2}+3\sqrt{3}$. $A=7\sqrt{2}+3\sqrt{3}$

. $A=10\sqrt{2}-3\sqrt{3}$. $A=10\sqrt{2}+4\sqrt{3}$

. $A=3\sqrt[3]{24}+6\sqrt[3]{81}$

. $A=23\sqrt[3]{3}$. $A=24\sqrt[3]{3}$. $A=25\sqrt[3]{3}$. $A=26\sqrt[3]{3}$

. $A=6\sqrt[3]{8x^2}-2\sqrt[3]{27x^2}$

. $A=-6\sqrt[3]{x^2}$. $A=6\sqrt[3]{x^2}$. $A=12\sqrt[3]{x^2}$. $A=8\sqrt[3]{x^2}$

. $A=\sqrt{20}+\sqrt{80}-\sqrt{45}$

. $A=3\sqrt{5}$. $A=-3\sqrt{5}$. $A=4\sqrt{5}$. $A=-4\sqrt{5}$

. $A=14\sqrt{3}+6\sqrt{2}-11\sqrt{3}$

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

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

. $A=5\sqrt{50}-8\sqrt{32}$

. $A=7\sqrt{2}$. $A=-7\sqrt{2}$. $A=8\sqrt{2}$. $A=-8\sqrt{2}$

. $A=\sqrt{12x+12}+\sqrt{27x+27}$

. $A=5\sqrt{3(x+1)}$. $A=6\sqrt{3(x+1)}$

. $A=-5\sqrt{3(x+1)}$. $A=-6\sqrt{3(x+1)}$

. $A=\sqrt{128y}-\sqrt{2y},\quad y>0$

. $A=5\sqrt{2y}$. $A=6\sqrt{2y}$

. $A=-5\sqrt{2y}$. $A=7\sqrt{2y}$

. $A=\dfrac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$

. $A=5+2\sqrt{6}$. $A=5-2\sqrt{6}$

. $A=-5+2\sqrt{6}$. $A=-5-2\sqrt{6}$

. $A=\dfrac{1+\sqrt{2}}{3-\sqrt{3}}$

. $A=\dfrac{3+\sqrt{3}+3\sqrt{2}+\sqrt{6}}{6}$. $A=\dfrac{3-\sqrt{3}+3\sqrt{2}+\sqrt{6}}{6}$

. $A=\dfrac{3+\sqrt{3}-3\sqrt{2}+\sqrt{6}}{6}$

. $A=\dfrac{3+\sqrt{3}+3\sqrt{2}+\sqrt{6}}{6}$

. $A=\dfrac{1+\sqrt{2}}{2+\sqrt{5}}$

. $A=-2+\sqrt{5}-2\sqrt{3}+\sqrt{15}$

. $A=-2+\sqrt{5}-2\sqrt{3}-\sqrt{15}$

. $A=-2+\sqrt{5}+2\sqrt{3}+\sqrt{15}$

. $A=-2-\sqrt{5}-2\sqrt{3}+\sqrt{15}$

. $A=\dfrac{8\sqrt{2}}{\sqrt{20}-\sqrt{18}}$

. $A=8\sqrt{10}+24$

. $A=8\sqrt{10}-24$

. $A=-8\sqrt{10}+24$

. $A=6\sqrt{10}+24$

ផ្នែកលំហាត់ត្រៃរិះ

.

. $\sqrt{9}$
. $\sqrt{16}$
. $\sqrt{36}$
. $-\sqrt{64}$
. $-\sqrt{100}$
. $\sqrt{121}$
. $-\sqrt{144}$
. $\sqrt{625}$
. $\sqrt[3]{8}$
. $\sqrt[3]{-8}$
. $\sqrt[3]{27}$
. $\sqrt[3]{64}$
. $\sqrt[3]{125}$
. $\sqrt[3]{216}$
. $\sqrt[3]{1000}$

.

. $\sqrt{\frac{9}{16}}$
. $\sqrt{\frac{49}{9}}$
. $\sqrt{\frac{81}{4}}$
. $\sqrt{\frac{169}{49}}$
. $\sqrt{\frac{196}{25}}$
. $\sqrt{\frac{400}{225}}$
. $\sqrt[3]{\frac{1}{8}}$
. $\sqrt[3]{\frac{8}{27}}$
. $\sqrt[3]{\frac{64}{125}}$
. $\sqrt[3]{\frac{512}{343}}$
. $\sqrt[3]{\frac{216}{1000}}$

.

. $\sqrt{16^3}$
. $-\sqrt{36^2}$
. $\sqrt{64^3}$
. $\sqrt[3]{-8^3}$
. $\sqrt[3]{-27^3}$
. $\sqrt[3]{1^5}$
. $\sqrt[3]{8^2}$
. $\sqrt[3]{64^2}$
. $\sqrt[3]{(-27)^2}$

.

. $\sqrt{y^2}$
. $\sqrt{x^4}$
. $\sqrt{x^2y^4}$
. $\sqrt{y^6}$
. $\sqrt{\frac{16}{x^2}}$
. $\sqrt{\frac{100}{n^4}}$
. $\sqrt[3]{8x^3}$
. $\sqrt{64m^3}$

.

. $\sqrt{(2x)^2}$
. $\sqrt[3]{(-5y)^3}$
. $\sqrt{(4-a)^2}$
. $\sqrt[3]{(x+3)^3}$
. $\sqrt{16b^2+24b+9}$
. $\sqrt{9x^2-30x+25}$
. $\sqrt{4m^2-20mn+25n^2}$
. $\sqrt{49x^2-112xy+64y^2}$

.

. $\sqrt{18}$. $\sqrt{\frac{30}{49}}$. $\sqrt[3]{40}$. $\sqrt[3]{192}$

. $\sqrt{48}$. $\sqrt{\frac{10}{121}}$. $\sqrt[3]{54}$. $\sqrt[3]{\frac{3m}{8n^3}}$

. $\sqrt{75}$. $\sqrt[3]{128}$. $\sqrt[3]{16a^5}$

.

. $\sqrt{36a^3b^3}$. $\sqrt{112a^3b^4}$. $\sqrt{64x^2y^3}$. $\sqrt[3]{54x^4b^3}$

. $\sqrt{27a^4b^3}$. $\sqrt{80m^4n^3}$. $\sqrt[3]{16m^3n^3}$. $\sqrt[3]{128a^5y^3}$

. $\sqrt{72x^5y^2}$. $\sqrt[3]{24p^3q^5}$

. x, y, m n

. $5\sqrt{6}$. $\frac{\sqrt{23}}{y^3}$. $2x\sqrt[3]{4}$

. $2m\sqrt{m}$. $2\sqrt[3]{5}$. $\frac{\sqrt[3]{3m}}{2n}$

.

. $3\sqrt{2}-4\sqrt{2}+5\sqrt{2}-3\sqrt{2}$. $4\sqrt{3}-2\sqrt{17}+3\sqrt{17}-3\sqrt{3}-2\sqrt{2}$

. $5\sqrt{2}-3\sqrt{3}-6\sqrt{2}+5\sqrt{3}$. $2\sqrt[3]{2}-8\sqrt[3]{3}+\sqrt[3]{2}+3\sqrt[3]{3}$

. $3\sqrt{15}-4\sqrt{3}-3\sqrt{15}+6\sqrt{3}$. $8\sqrt[3]{2}-3\sqrt[3]{3}-5\sqrt[3]{2}+2\sqrt[3]{3}$

.

. $\frac{2}{3}\sqrt{27}-\frac{3}{4}\sqrt{48}$. $\frac{3}{5}\sqrt{75}-\frac{2}{3}\sqrt{27}$. $3\sqrt[3]{81}-\frac{1}{2}\sqrt[3]{192}$

. $\frac{1}{4}\sqrt{288}-\frac{1}{6}\sqrt{72}$. $5\sqrt[3]{128}-3\sqrt[3]{250}$. $4\sqrt[3]{54}-3\sqrt[3]{128}$

.

. $2\sqrt{8}-3\sqrt{98}-2\sqrt{200}$. $2\sqrt[3]{16}+3\sqrt[3]{54}-2\sqrt[3]{128}$

. $-3\sqrt{50}-\sqrt{32}+5\sqrt{200}$. $3\sqrt[3]{81}+\frac{1}{2}\sqrt[3]{128}-3\sqrt[3]{192}+4\sqrt[3]{54}$

. $3\sqrt{175}-2\sqrt{28}+3\sqrt{63}-\sqrt{112}$. $4\sqrt[3]{54}-6\sqrt[3]{81}-4\sqrt[3]{16}+3\sqrt[3]{24}$

. $\sqrt{108}-2\sqrt{27}-\sqrt{40}-5\sqrt{160}$. $-2\sqrt[3]{40}-3\sqrt[3]{135}+5\sqrt[3]{320}+8\sqrt[3]{5}$

.

. $-2(2\sqrt{12}-\sqrt{18})-5(3\sqrt{32}-\sqrt{27})$. $3(3\sqrt[3]{40}-\sqrt[3]{135})+4(\sqrt[3]{320}-\sqrt[3]{40})$

. $\frac{2\sqrt{27}}{3}-3\sqrt{48}+\frac{4\sqrt{50}}{5}-\frac{4\sqrt{18}}{3}$. $\frac{2}{3}\sqrt[3]{81}-\frac{1}{2}\sqrt[3]{24}+\frac{2\sqrt[3]{135}}{3}-\frac{3\sqrt[3]{40}}{2}$

. a,b,x,y z

. $-3\sqrt{32x}+6\sqrt{8x}$. $3xy\sqrt{x^2y}-2\sqrt{x^4y^3}$

. $2\sqrt{125x^2z}+8x\sqrt{80z}$. $-3a\sqrt{a^3b^5}-2b\sqrt{a^5b^3}+5\sqrt{a^3b^3}$

. $7a\sqrt{b^3}+b\sqrt{4a^2b}-\sqrt{4b}$. $8a\sqrt[3]{54a}+6\sqrt[3]{16a^4}$

. $8b\sqrt{49b}-7\sqrt{9b^3}+a\sqrt{4a}+\sqrt{a^3}$. $3\sqrt[3]{x^4y}-6\sqrt[3]{xy^4}+2\sqrt[3]{x^4y^4}$

. A $a=5,b=3;A=\sqrt{ab}-\sqrt{ab^3}-\sqrt{9a^3b^3}-\sqrt{a^3b}$

. $A=\sqrt{4a}+a\sqrt{a^2b}+\sqrt{b^2a}+b\sqrt{9b}$ $a=3,b=2$

.

. $(2\sqrt{3})(3\sqrt{2})$. $(6\sqrt{2})(-12\sqrt{3})$. $2\sqrt[3]{3}\left(-\frac{1}{2}\sqrt[3]{2}\right)$

. $(4\sqrt{6})(-2\sqrt{5})$. $(3\sqrt{8})(-3\sqrt{48})$. $(3\sqrt[3]{2})(5\sqrt[3]{15})$

. $(3\sqrt{5})(5\sqrt{3})$. $(-3\sqrt{75})(-2\sqrt{48})$. $(6\sqrt[3]{8})(-3\sqrt[3]{2})$

.

. $3\sqrt{5}(2\sqrt{18}-3\sqrt{48})$. $\frac{3}{2}\sqrt{2}(2\sqrt{18}-3\sqrt{48})$. $3\sqrt[3]{3}(3\sqrt[3]{8}-2\sqrt[3]{18})$

. $-3\sqrt{3}(3\sqrt{6}-3\sqrt{2})$. $-4\sqrt[3]{3}(2\sqrt[3]{6}-2\sqrt[3]{5})$. $-3\sqrt[3]{5}(4\sqrt[3]{20}-2\sqrt[3]{45})$

. $\frac{1}{2}\sqrt{3}(2\sqrt{48}-3\sqrt{32})$. $2\sqrt[3]{5}(3\sqrt[3]{3}-5\sqrt[3]{2})$. $3\sqrt[3]{4}(4\sqrt[3]{2}-7\sqrt[3]{16})$

.

. $(2\sqrt{3}-8)(9+2\sqrt{5})$. $(\sqrt{125}-\sqrt{75})(\sqrt{80}-\sqrt{48})$

. $(3\sqrt{5}-2\sqrt{10})(\sqrt{50}-2\sqrt{80})$. $(3\sqrt[3]{18}+3\sqrt[3]{27})(2\sqrt[3]{8}-2\sqrt[3]{12})$

. $(\sqrt{50}-\sqrt{75})(\sqrt{32}-\sqrt{48})$. $(\sqrt[3]{80}-2\sqrt[3]{27})(-3\sqrt[3]{20}-3\sqrt[3]{12})$

. $a=3\sqrt{5}-2\sqrt{10},b=5\sqrt{7}+2\sqrt{10},c=\sqrt[3]{18}-\sqrt[3]{27}$ $d=3\sqrt[3]{6}+\sqrt[3]{8}$

. $-3ab$. a^2-b^2 . b^2-2ab . c^2-b^2

. a^2+b^2 . a^2-2b^2 . $\frac{1}{2}cd$. c^2+2cd

.

. $\sqrt{\dfrac{b^2}{b^2-14b+49}}$
. $\sqrt{\dfrac{49x^2-56x+16}{36x^2}}$
. $\sqrt{\dfrac{a^2+16ab+64b^2}{a^2+10ab+25b^2}}$
. $\sqrt{\dfrac{25b^2+10ab+a^2}{16b^2+24ab+9a^2}}$

.

. $\dfrac{3}{\sqrt{10}}$
. $\dfrac{3\sqrt{3}}{\sqrt{33}}$
. $\dfrac{6}{\sqrt{48}}$
. $\dfrac{8}{\sqrt{27}}$
. $\dfrac{9\sqrt{4}}{\sqrt{18}}$
. $\dfrac{5\sqrt{5}}{\sqrt{72}}$
. $\dfrac{\sqrt[3]{9}}{\sqrt[3]{10}}$
. $\dfrac{2\sqrt[3]{3}}{\sqrt[3]{30}}$
. $\dfrac{\sqrt[3]{18}}{\sqrt[3]{20}}$
. $\sqrt[3]{\dfrac{7m}{36n}}$
. $\sqrt[3]{\dfrac{11p}{49q}}$
. $\sqrt[3]{\dfrac{3}{4y^2}}$

.

. $\dfrac{36-\sqrt{6}}{\sqrt{8}}$
. $\dfrac{\sqrt{3}+\sqrt{5}}{3\sqrt{20}}$
. $\dfrac{8}{2\sqrt{75}-3\sqrt{50}}$
. $\dfrac{2\sqrt{3}}{2\sqrt{80}-\sqrt{45}}$
. $\dfrac{9-\sqrt[3]{3}}{2\sqrt[3]{32}}$
. $\dfrac{5\sqrt[3]{4}+\sqrt[3]{3}}{8\sqrt[3]{13}}$
. $\dfrac{2\sqrt[3]{6}}{2\sqrt[3]{27}-\sqrt[3]{9}}$
. $\dfrac{2\sqrt[3]{2}}{\sqrt[3]{16}-\sqrt[3]{12}}$

. $m=3\sqrt{8}+\sqrt{5}$ $n=3\sqrt{8}-\sqrt{5}$

. $\dfrac{mn+m^2}{m}$
. $\dfrac{m^2-n^2}{m+n}$
. $\dfrac{n^2-2mn}{n}$

. . $\sqrt{2}$ $\sqrt[3]{3}$

. $A=\sqrt{22-\sqrt{288}}$

. . $2^{2019}+2^{2019}=2^{2020}$

. x $2^x\cdot 2^{x+3}=8^4$

២. សមាមាត្រ

២.១ សមាមាត្រ

និយមន័យ ២.១.១ a,b,c,d $\frac{a}{b}=\frac{c}{d}\Leftrightarrow ad=bc$

២.១.១ សមាមាត្រស្រប

និយមន័យ ២.១.២ $\frac{x_1}{x_2}=\frac{y_2}{y_1}\Leftrightarrow x_1x_2=y_1y_2$

២.១.២ សមាមាត្រច្រាស

និយមន័យ ២.១.៣ $\frac{y_1}{x_2}=\frac{y_2}{x_2}\Leftrightarrow x_2y_1=x_1y_2$

២.២ លក្ខណៈសមាមាត្រ

និយមន័យ ២.២.១ x_1,x_2,x_3,y_1,y_2 y_3

- x_1 x_2 $x_1+x_2\neq 0$ $\frac{y_1}{x_1}=\frac{y_2}{x_2}\Leftrightarrow\frac{y_1}{x_1}=\frac{y_2}{x_2}=\frac{y_1+y_2}{x_1+x_2}$
- x_1,x_2 x_3 $x_1+x_2+x_3\neq 0$

  $\frac{y_1}{x_1}=\frac{y_2}{x_2}=\frac{y_3}{x_3}\Leftrightarrow\frac{y_1}{x_1}=\frac{y_2}{x_2}=\frac{y_1+y_2+y_3}{x_1+x_2+x_3}$

២.៣ ចំណោទដែលទាក់ទង និង សមាមាត្រ

២.៤ ចំណោទដែលទាក់ទង និង ភាគរយ

២.៥ ចំណោទនៃភាគរយកើន ឬ ថយ

២.៦ ការប្រាក់

ផ្នែកលំហាត់មានដំណោះស្រាយ

. 0.5

. 5% . 0.05% . $\frac{1}{2}$. $\frac{1}{5}$

. $\frac{6}{36}$

. $\frac{1}{3}$. $\frac{1}{5}$. $\frac{1}{6}$. $\frac{1}{7}$

. $\frac{4}{28}$

. $\frac{1}{3}$. $\frac{1}{5}$. $\frac{1}{6}$. $\frac{1}{7}$

. $\frac{9}{81}$

. $\frac{1}{8}$. $\frac{1}{9}$. $\frac{1}{6}$. $\frac{1}{7}$

. $\frac{81}{27}$

. $\frac{3}{8}$. $\frac{4}{3}$. 3 . $\frac{1}{7}$

. 12000

. 120 . 2400 . 12000 . 120000

. 327000

. 250000 . 122500 . 235000 . 135000

ផ្ទៃកលំហាត់ត្រៃរិះ

៣. កន្សោមពីជគណិត

៣.១ ផលគុណនៃកន្សោមពីជគណិត

លក្ខណៈ ១ $a, b\ c$

- $(a+b)^2 = a^2+2ab+b^2$
- $(a-b)^2 = a^2-2ab+b^2$
- $a^2-b^2 = (a-b)(a+b)$
- $(a+b)^3 = a^3+3a^2b+3b^2a+b^3$
- $(a-b)^3 = a^3-3a^2b+3b^2a-b^3$
- $a^3-b^3 = (a-b)(a^2+ab+b^2)$
- $a^3+b^3 = (a+b)(a^2-ab+b^2)$

- $(a+b+c)^2 = a^2+b^2+c^2+2ab+2bc+2ca$

៣.២ ការដាក់កន្សោមពីជគណិតជាផលគុណនៃកត្តា

៣.២.១ ដាក់ជាកត្តារួម

ជាទូទៅ ៣.២.១ $ka+kb = k(a+b)$ k

▪ **ឧទាហរណ៍ ៣.១** $A = 2x^2+4xy$

$2x$ $2x$ $A = 2x(x+2y)$

៣.២.២ ប្រើរូបមន្តសំខាន់ៗ

លក្ខណៈ ២ $a, b\ c$

- $(a+b)^2 = a^2+2ab+b^2$
- $(a-b)^2 = a^2-2ab+b^2$
- $a^2-b^2 = (a-b)(a+b)$
- $(a+b)^3 = a^3+3a^2b+3b^2a+b^3$
- $(a-b)^3 = a^3-3a^2b+3b^2a-b^3$
- $a^3-b^3 = (a-b)(a^2+ab+b^2)$
- $a^3+b^3 = (a+b)(a^2-ab+b^2)$
- $(a+b+c)^2 = a^2+b^2+c^2+2ab+2bc+2ca$

៣.២.៣ វិធីគុណខ្វែង

ជាទូទៅ ៣.២.២ $a, b,\quad x^2+(a+b)x+ab = (x+a)(x+b)$

៣.២.៤ វិធីបំពេញ និង បន្ថយតួ

៣.៣ ប្រមាណវិធីកន្សោមសនិទាន

ផ្នែកលំហាត់មានដំណោះស្រាយ

. $A=(2x+5)(3x-2)$

. $A=6x^2+11x-10$. $A=6x^2-11x-10$

. $A=-6x^2+11x-10$. $A=6x^2+11x+10$

. $A=(x+1)(x^2-x+1)$

. $A=x^3+1$. $A=x^3-1$. $A=(x+1)^3$. $A=(x-1)^3$

. $A=(x-1)(x^2+x+1)$

. $A=x^3+1$. $A=x^3-1$. $A=(x+1)^3$. $A=(x-1)^3$

. $A=(x-1)(x+1)$

. $A=x^2+1$. $A=x^2-1$. $A=(x+1)^2$. $A=(x-1)^2$

. $A=(x+2)(x+3)$

. $A=x^2-5x+6$. $A=x^2+5x-6$

. $A=-x^2+5x+6$. $A=x^2+5x+6$

. $A=(-x+2)(x+3)$

. $A=x^2-x+6$. $A=-x^2+x-6$

. $A=-x^2-x+6$. $A=-x^2+x+6$

. $A=x^3+3x^2+3x+1$

. $A=(x+1)^3$. $A=x^3-1$. $A=-(x-1)^3$. $A=x^3+1$

. $A=x^3-3x^2+3x-1$

. $A=(x+1)^3$. $A=x^3-1$. $A=-(x-1)^3$. $A=x^3+1$

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

. $A = 2x^2 + 4x + 1$
. $A = 4x^2 + 4x + 1$
. $A = x^2 + 4x - 4$
. $A = 4x^2 - 4x + 1$

. $A = (1 - 3x)^2$

. $A = 1 - 9x^2$
. $A = 1 - 6x + 9x^2$
. $A = 1 + 9x^2$
. $A = 1 + 6x + 9x^2$

. $A = (k + 4)(k^2 - 4k + 1)$

. $A = k^3 - 15k + 4$
. $A = k^3 + 15k + 4$
. $A = k^2 - 15k + 4$
. $A = k^3 - 15k - 4$

. $A = (a - 2)(a^2 - 3a + 2)$

. $A = a^3 - 5a^2 + 8a - 4$
. $A = a^3 - 5a^2 + 8a + 4$
. $A = a^3 + 5a^2 + 8a - 4$
. $A = -a^3 - 5a^2 + 8a - 4$

. $A = (x + 3)(x^2 - 4x - 3)$

. $A = x^3 + 7x^2 + 9x - 9$
. $A = x^3 + 7x^2 - 9x - 9$
. $A = x^3 - 7x^2 + 9x - 9$
. $A = x^3 + 7x^2 + 9x + 9$

. $A = (a - b)(a^2 - 2ab - 3b^2)$

. $A = a^3 - 3a^2b - ab^2 + 3b^3$
. $A = a^3 - 3a^2b + ab^2 + 3b^3$
. $A = a^3 + 3a^2b - ab^2 + 3b^3$
. $A = a^3 - 3a^2b - ab^2 - 3b^3$

. $A = (4x - 9)(x^2 + x - 12) - (2x + 1)(2x^2 - 9x + 4)$

. $A = 11x^2 - 56x + 104$
. $A = 11x^2 - 56x - 104$
. $A = 11x^2 + 56x + 104$
. $A = -11x^2 - 56x + 104$

. $A = (14x + 20)(x^2 + 2x - 3) - (2x + 2)(7x^2 + 20x)$

. $A = 6x^2 - 42x - 60$
. $A = -6x^2 - 42x - 60$
. $A = -6x^2 + 42x - 60$
. $A = -6x^2 - 42x + 60$

. $A=(-6x+1)(x^2-x-2)-(2x-1)(-3x^2+x+2)$

. $A=2x^2+8x-2$. $A=2x^2+8x$

. $A=2x^2+8x+2$. $A=2x^2-8x$

. $A=(x-2)^2-(2x+5)^2$

. $A=3x^2-24x-21$. $A=-3x^2-24x+21$

. $A=-3x^2+24x-21$. $A=-3x^2-24x-21$

. $A=3(2-x)(2+x)-(x-1)^2$

. $A=-4x^2-2x+11$. $A=-4x^2+2x+11$

. $A=4x^2+2x+11$. $A=-4x^2+2x-11$

. $A=4(x+1)^2-9(2x-1)^2$

. $A=32x^2+44x-5$. $A=-32x^2+44x+5$

. $A=-32x^2-44x-5$. $A=-32x^2+44x-5$

. $A=2(x+2)^2-(x+1)(x-1)$

. $A=-x^2+8x+9$. $A=x^2+8x+9$

. $A=x^2-8x+9$. $A=x^2+8x-9$

. $A=2(x-1)+4(x-1)^2$

. $A=2(x-1)(2x-1)$. $A=-2(x-1)(2x-1)$

. $A=(x-1)(2x-1)$. $A=2(x-1)(2x+1)$

. $A=(x^2-x)+(xy-y)$

. $A=(x-1)(x-y)$. $A=(x-1)(x+y)$

. $A=(x+1)(x+y)$. $A=-(x-1)(x+y)$

. $A=(xz+10x)+(yz+10y)$

. $A=-(z+10)(x+y)$
. $A=(z+10)(x-y)$
. $A=(z-10)(x+y)$
. $A=(z+10)(x+y)$

. $A=2x^3+8x^2+8x$

. $A=x(x+2)(x+3)$
. $A=x(x-2)(x+2)$
. $A=-2x(x-2)^2$
. $A=x(x+2)^2$

. $A=4(x-2)^2-(1-3x)^2$

. $A=-5(x-1)(x-3)$
. $A=(x-1)(x+3)$
. $A=5(x-1)(x+3)$
. $A=-5(x-1)(x+3)$

. $A=4x^2(x+1)-9(x+1)$

. $A=(x+1)(4x^2+9)$
. $A=(x+1)(4x^2-9)$
. $A=(x-1)(4x^2+9)$
. $A=(x+1)(2x-3)(2x+3$

. $A=9(2x-3)^2-4(x+5)^2$

. $A=(4x+19)(8x+1)$
. $A=-(4x-19)(8x+1)$
. $A=(4x-19)(8x-1)$
. $A=(4x-19)(8x+1)$

ផ្នែកលំហាត់ត្រៃរិះ

.

. $(x+4)(x^2+4x+1)$. $(y+5)(y^2-3y-8)$

. $(x+3)(x^{+}4x-3)$. $(3n+4)(n+5)$

. $(a-b)(a^2-2ab-3b^2)$. $(x+3)(x-1)^2$

. $(x+2)(x^2-5x-1)$. $(y-1)(y+2)^2$

. a

. $(x+a)(x-8)=x^2-12x+32$. $(2y-6)(y+a)=2y^2+8y-42$

.

. $2x^4+8x$. $4x^3-2x^2+14x$

. $7b^3+21b$. $3a^4+9a^2-15$

. $8ax^2-12a^2x^2$. $2x^3+3x^2+4x$

. $10x^3y^2-15xy^3$. $9xy+3x^2+4xy^2$

. $6x^2-9y^2$. $8abc^2-4b^2c+12a^2bc$

. $15x-20y^2$. $6x^2yz+2xy^2z-4xyz$

.

. $a(x+1)+b(x+1)$. $xy+2x-7y-14$. $2ab-8a+3b-12$

. $z(y-3)+2(y-3)$. $ap-2pk+ya-2yk$. $3ab+12a-b-4$

. $ab-3a+9b-27$. $am-mb-an+nb$. $xy-8x-3y+24$

. $ab+7a+4b+28$. $12xy+15x+4y+5$

.

. $at+bt+ct+2a+2b+2c$. $ax+ay-az-bx-by+bz$

. $ax+2ay+3az-4x-8y-12z$. $y^2-cy-ay+ac-by+bc$

.

. $A=(x+y)^2-z^2$. $A=(x^2-2xy+y^2)-t^2$

. $A=(x+y)^2-(z+t)^2$. $A=(a+b)^2-(a-b)^2$

.

. x^2-16 . $25b^2-64$. $8x^2-160x+800$

. y^2-121 . $36x^4-y^2$. $5x^2y^2-500$

. y^2-1 . $84x^2-21$. $3t^2z^4-147$

. $4z^2-49$. $3x^2-75$. $2xy^2-32x$

. $3a^2-12$. $4m^2-144$. $3a^2b^4-192a^3$

.

. $9(x-1)^2-4(2x+3)^2$. $(x+1)^2-(x^2-1)+2x+2$

. $3(x+1)-x^2-2x-1$. $4(y+2)^2-y^2$

. $16(x+3)^2-(x-1)^2$. $(2x-5)^2-4x^2+25$

. a $P=2x^3+3x^2-8x+3$ $(x-1)(2x^2+ax-3)$ P

.

. x^2+5x+4 . x^2+7x-8 . y^2-y-12 . $5t^2+12t+7$

. x^2+5x+6 . x^2+x-6 . $y^2-2y-35$. $2x^2+13x-7$

. $t^2+8t+15$. $x^2+11x-12$. $n^2-4n-12$. $2x^2+5x-3$

. $x^2-10x+9$. b^2+6b-7 . $a^2-3a-18$

. $t^2-11t+28$. x^2+3x-4 . x^2-6x-7

.

. $2a^2+24a+70$. $5a^2-15a-90$. $4bc^2+12bc-40b$

. $3x^2+21x+36$. $2x^2-4x-160$. $6xy^4+18xy^2-168x$

.

. $3x-\dfrac{x+2}{x}$. $\dfrac{2x-5}{3x}+3x-1$. $y+\dfrac{y-4}{3y+4}$

. $a-3-\dfrac{5}{a+1}$. $b+5+\dfrac{5}{b-5}$. $3n+\dfrac{2n+3}{4n+5}$

. a,b c $\dfrac{2x^2-x+3}{x-1}=ax+b+\dfrac{c}{x-1}$

.

. $\dfrac{6x-1}{81-x^2}-\dfrac{2x}{x+9}$. $\dfrac{11}{121-x^2}-\dfrac{x^2}{x+11}$. $\dfrac{4x+16}{(x+4)(x-4)}-\dfrac{4}{x+4}$
. $\dfrac{10y-1}{100-y^2}-\dfrac{5y}{y+10}$. $\dfrac{t}{2(t+3)}-\dfrac{2}{3(t+3)}$. $\dfrac{4z+2}{16-z^2}+\dfrac{4}{z-4}$

.

. ks

.

. ks

ផ្នែកលំហាត់បន្ថែម ពីឯកសារផ្សេងៗ

. (Expan each of the following.)

. $3(2x+7y)$. $-4(2a+3b)$. $-5(-2x-9k)$. $-8(4p-3q)$

. $4(3h-5k)$. $-6(-3x+7y)$. $7(-5h-7k)$. $9(-2h+3k)$

. (Expan each of the following.)

. $5x(2x+3y)$. $4h(-2k-3h)$. $-7x(-3x+4y)$

. $-6x(y-4x)$. $9a(-4a+7b)$. $8p(5p-2q)$

. $-3m(-2m-n)$. $-4y(2x+5y)$

. (Expan and Simplify each of the following.)

. $3(x+2)+4(2x+3)$. $13(5x+7)-6(3x-5)$

. $6(p+3)-5(p-4)$. $9(3p-2)-5(2+p)$

. $8(5-4x)-7(7-5x)$. $8(5a-4)+3(2-4a)$

. $11(5x-7)+9(2-3x)$. $7(12-5x)-3(9-7x)$

. (Expan and Simplify each of the following.)

. $2x(3x+4)+x(5x-2)$. $2a(4b-3a)-5a(2b-5a)$

. $5x(x+3)-4x(5-x)$. $7x(2x+3y)-3x(3x-4y)$

. $4x(3x-y)-2x(5y-x)$. $5x(-2x-3y)+2x(-x+3y)$

. $5p(2p+5q)-3p(2q-7p)$. $4p(-3p+q)-2p(-5q+p)$

. (Expan each of the following.)

. $(x+5)(x+7)$. $(2x-3y)(x-2y)$

. $(x+11)(x-7)$. $(4x-5)(3x+4)$

. $(7-2x)(4+x)$. $(4x-3)(2x+7y)$

. $(x^2+3)(2x-4)$. $(4x+5y)(5x+7y)$

. $(x^2-4)(2x+3)$. $(4x+3)(4x-3)$

. $(2x-3b)(2x-5c)$
. $(ab-5)(ab+8)$
. $(x-1)(x+2)(x-3)$
. $(x-2)(x+2)(x^2+4)$
. $(x^2-y)(x^2+y)(x^4+y^2)$

. (Expan each of the following.)

. $(3x+y)^2$
. $(6x+5y)^2$
. $(7x-y)^2$
. $(5x-9y)^2$
. $(xy+2)^2$
. $(x^2+3)^2$
. $(x^2y+z)^2$
. $(abc-x)^2$
. $(x^2+4)^2$
. $\left(x+\frac{2}{x}\right)^2$
. $\left(x+\frac{y}{3}\right)^2$
. $\left(3x+\frac{y}{4}\right)^2$
. $\left(\frac{a}{b}+\frac{1}{c}\right)^2$
. $\left(\frac{2}{x}+\frac{3}{y}\right)^2$
. $\left(\frac{a}{bc}-3\right)^2$
. $\left(\frac{a}{b}+\frac{b}{a}\right)^2$
. $\left(\frac{x^2}{y}-\frac{y}{x}\right)^2$
. $\left(\frac{a}{b}+3b\right)^2$

. (Expan each of the following.)

. $(3-a)(9+3a+a^2)$
. $(x+y)(x^2-xy+y^2)$
. $(2a+b)(3a-4b+c)$
. $(2x+1)(x^2-3x-4)$
. $(x^2-4)(x^2-2x+1)$
. $(a+2)(3a^2-5a+6)$
. $(5-2a)(2-3a-a^2)$
. $(7-a)(5a^2-2a+1)$
. $(p-2q)(2p+3q-1)$
. $(x+1)(x^3-x^2-+x-1)$
. $(x-y)(x^2+xy+y^2)$
. $(a-1)(a^3-3a^2+3a-1)$

. (Simplify each of the following.)

. $(3x+y)(x-2y)-2(x-y)^2$
. $(x-y)^2+2y(x+y)-(x^2-y^2)$
. $(7x+1)(x-5)-3(4-2x-x^2)$
. $(3x-8)(x+1)-(2x-1)(5-x)$
. $(a+1)(a-3)+(2a-3)(5-7a)$
. $(2x+3)(x-7)-(x+4)(x^2-1)$
. $(x+3y)(x-3y)-2(x+2y)(x-y)$
. $(3x^2+y)(2x-y)-(2x+y)(3x^2-y)$

. (Factorise each of the following where possible.)

. $24x+16$
. $2ab+4abc$

. $abc - a^2bc^3$
. $2x + kx$
. $5ab - 8cd$
. $2a^2b^3c - 8ab^2c^3$
. $p^2q - 2pq^2 + 4p^2q^2$
. $a^2b - ab^2 + a^2b^2$
. $2x - 4x^2 + 8xy^2$
. $5a^2x - 3a^3x^2 + 6a^2x^2$
. $6a^2 + 8a^3 - 10a^5$
. $12x^3y - 9x^2y^2 + 6xy^3$

. (Factorise each of the following.)

. $a(b-c) + bc - a^2$
. $x^2 + xy + 3yz + 3xz$
. $x^2z - 4y - x^2y + 4z$
. $8ab - 6bc + 15cd - 20ad$
. $2ax - 4ay + 3bx - 6by$
. $x^3 + xy - 3x^2y - 3y^2$
. $a^2 - 1 + ab + b$
. $3xy + 6y - 5x - 10$
. $a^2 - 3bc - ab + 3ac$
. $x^2y - 3y - 6 + 2x^2$
. $x - 4x^2 - 4 + x^3$
. $x^3 - 12 + 4x - 3x^2$
. $x - y - x^2 + y^2$
. $4x^2 - y^2 + 6x + 3y$
. $(x+5)(x-1) + 5a + ax$
. $6y + 3x^3y + x^4 + 2x$
. $a^2x - 12by - 3xb + 4a^2y$
. $5x^2 - 4yz + 5xz - 4xy$

. (Factorise each of the following.)

. $\frac{1}{4}x^2 - y^2$
. $9a^2 - x^2$
. $4a^2 + 4ab + b^2$
. $9a^2 - 6ab + b^2$
. $(a+2b)^2 - a^2$
. $x^4 + 8x^2 + 16$
. $a^2b^2 - 10ab + 25$
. $25x^2 - 20x + 4$
. $\frac{x^2}{4} - \frac{xy}{4} + \frac{y^2}{16}$
. $9a^2 + 12a + 4$
. $16a^2 + 40ab + 25b^2$
. $49a^2 - 28ab + 4b^2$
. $4x^2 - 81$
. $81ab^2 - 4ac^2$
. $x^4 - 81y^4$

. (Factorise each of the following.)

. $x^2 - 2x - 35$
. $2x^2 + 8x - 42$
. $3x^2 - 5x - 2$
. $2x^2 - 5x - 3$
. $x^2 + 20x + 75$
. $x^2 - 11x + 28$
. $x^2 + 4x - 77$
. $x^2 + 3x - 154$
. $x^2 - 21x + 68$
. $x^2 - 10x - 171$
. $12x^2 - 31x - 15$
. $15x^2 + 2x - 1$
. $3x^2 - 36x + 108$
. $3x^2 + 11x - 20$
. $3x^2 - x - 10$

. (Factorise each of the following.)

. $4x^3 - 49x$. $x^4 - 25x^2$. $2x^3 + 3x^2 - 2x$

. $5x^2 - 20$. $49 - x^2$. $6x^2 - 7xy - 10y^2$

. $27a^3 - 48a$. $4x^2y - 8xy^2$. $(3x - y)^2 - x^2$

. $9 - (a - b)^2$. $4x^2 - (p - 2)^2$. $6x^3 - x^2y - 35xy^2$

. $(x - 3)^2 16y^2$. $3x^2 - 12y^2$. $81x^5y^3 - 121x^3y^5$

. $18x^3 - 8xy^2$. $(3x - 2y)^2 - (2x - 3y)^2$

.

. 99×101 . $462^2 - 452^2$. $65^2 + 650 + 25$

. 8001^2 . $823^2 - 177^2$. $41^2 + 738 + 81$

. 603×597 . $1.013^2 - 0.013^2$. $92^2 - 368 + 4$

. $201^2 - 99^2$. $201^2 - 402 + 1$. $15316^2 - 14316^2$

. $3x^2 + 26x + 51$ 32651

Factorise $3x^2 + 26x + 51$. Hence or otherwise find two factors of 32651.

. $(a+b)^2 = 73$ $ab = 6.5$ $a^2 + b^2$

if the $(a+b)^2 = 73$ and $ab = 6.5$,calculate the value of $a^2 + b^2$.

. $a^2 - b^2$

$2030^2 - 2029^2 + 2028^2 - 2027^2$

Factorise $a^2 - b^2$.Hence evaluate the value of $2030^2 - 2029^2 + 2028^2 - 2027^2$.

. (Factorise each of the following.)

. aa

៤. សមីការដឺក្រេទី១មានមួយអញ្ញាត

៤.១ សមីការដឺក្រេទី១ មានមួយអញ្ញាត

និយមន័យ ៤.១.១ $ax+b=c$ $ax=b$ $a,b\in\mathbb{R}$

ជាទូទៅ ៨ $ax=b$

- $a,b\neq 0$ $x=\dfrac{b}{a}$
- $a\neq 0, b=0$ $x=0$
- $a=0, b\neq 0$
- $a=b=0$

៤.២ សមីការដែលមានតាគបែងជាលេខ

ជាទូទៅ ៩

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៤.៣ សមីការដែលមានតាគបែងជាអញ្ញាត

ជាទូទៅ ១០

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៤.៤ សមីការដែលអង្គទី១ ជាផលគុណនៃកត្តា និងអង្គទី២ស្មើសូន្យ

ជាទូទៅ ១១ $A \times B = 0 \;\; A = 0 \;\; B = 0$

៤.៥ ចំណោទសមីការដឺក្រេទី១ មានមួយអញ្ញាត

ផ្នែកលំហាត់មានដំណោះស្រាយ

.

. $ax+b=c$. $ax+by=c$. $ax^2+b=c$. $a\sqrt{x}+b=c$

. $ax=b$ $a\neq 0$ $b=0$

. .

. . $x=0$

. $ax=b$ $a=0$ $b\neq 0$

. .

. . $x=0$

. $ax=b$ $a\neq 0$ $b\neq 0$

. .

. . $x=0$

. $ax=b$ $a=0$ $b=0$

. .

. . $x=0$

. $x-1=0$

. $x=-1$. $x=1$. $x=-2$. $x=2$

. $x-1=1$

. $x=-1$. $x=1$. $x=-2$. $x=2$

. $x+2=1$

. $x=-1$. $x=1$. $x=-2$. $x=2$

. $2x+1=5$

. $x=-1$. $x=1$. $x=-2$. $x=2$

. $-3x+1=7$

. $x=-1$. $x=1$. $x=-2$. $x=2$

. $3(x+1)-1=5$

. $x=-1$. $x=1$. $x=-2$. $x=2$

. $3(x+1)+2=5$

. $x=-1$. $x=1$. $x=-2$. $x=2$

. $(x+1)(x+2)=x^2+5$

. $x=-1$. $x=1$. $x=-2$. $x=2$

. $7x+3=5x+13$

. $x=-1$. $x=3$. $x=-2$. $x=5$

. $3-3x+5x=2x+2$

. $x=-1$. $x=3$ . .

. $2x-4x+20=20-2x$

. $x=-1$. $x=3$ . .

. $6(x-2)=3(x-8)$

. $x=-1$. $x=3$. $x=-4$. $x=4$

. $3x+5=3(x+2)$

. $x=-1$. $x=3$ . .

. $6x-4=2+6(x-1)$

. $x=-1$. $x=3$ . .

. $\frac{8x}{5}+3=x$

. $x=-1$. $x=3$. $x=-5$. $x=5$

. $\frac{3x-1}{6}-\frac{x+1}{12}=\frac{x-5}{4}+\frac{x}{6}$

. $x=-1$. $x=3$ . .

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

. $x=-1,2$. $x=-1,-2,$ . .

. $x^2-9=0$

. $x=3$. $x=-3,3$ . . $x=2$

. $x^2-9=0$

. $x=3$. $x=-3,3$ . . $x=2$

. $x^2-6x-7=0$

. $x=-1,7$. $x=-1,-7$ . . $x=1,7$

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

. $x=-1,2$. $x=1,2$. $x=-1,-2$. $x=1,-2$

. $x^2-x-2=0$

. $x=-1,2$. $x=1,2$. $x=-1,-2$. $x=1,-2$

. $x^2+3x+2=0$

. $x=-1,2$. $x=1,2$. $x=-1,-2$. $x=1,-2$

. $x^2-3x+2=0$

. $x=-1,2$. $x=1,2$. $x=-1,-2$. $x=1,-2$

. $x^2+5x+6=0$

. $x=2,3$. $x=-2,3$. $x=-2,-3$. $x=2,-3$

. $x^2-5x+6=0$

. $x=2,3$. $x=-2,3$. $x=-2,-3$. $x=2,-3$

. $x^2+5x-6=0$

. $x=-1,6$. $x=-1,-6$. $x=1,-6$. $x=1,6$

. $x^2-x-6=0$

. $x=2,3$. $x=2,-3$. $x=-2,-3$. $x=-2,3$

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

. $x=-1,1$. $x=-1$. $x=-2,1$. $x=-2,-1$

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

. $x=-1,1$. $x=-1$. $x=-2,1$. $x=-2,-1$

. $x^2-2x-3=0$

. $x=-1,1$. $x=-1,3$. $x=-1,-3$. $x=-2,-1$

. $x^2+2x-3=0$

. $x=-1,1$. $x=-1,3$. $x=1,3$. $x=-2,-1$

. $x^2-5x+4=0$

. $x=1,4$. $x=-1,4$. $x=1,-4$. $x=-2,-1$

. $x^2+5x+4=0$

. $x=1,4$. $x=-1,4$. $x=-1,-4$. $x=-2,-1$

ផ្នែកលំហាត់ត្រៃរិះ

.

. $4(x-5)=2x-14$

. $x+7=-2(x+8)$

. $3(2y-1)=5(2z-1)$

. $n-(8+4n)=2(3n-4)$

. $(2m+3)^2-(2m+5)=4m(m+4)+4$

. $5p-(8-p)=2[-4-(3+5p)-13]$

. $-[k-(4k+2)]=2+(2k+7)$

. $\sqrt{3}(x-2)-2x\sqrt{2}=2(x\sqrt{3}-3-x\sqrt{3})$

. $6(7x+8)-7(6x+4)=5(6+7x)-35(x-1)$

. $8(3-2p)-16(1-p)-3(p-4)=20-3p$

.

. $\frac{5x}{3}+\frac{9}{8}=\frac{7x}{6}+\frac{3}{16}$

. $\frac{2y+1}{3}+\frac{5-y}{4}=1-\frac{3y+2}{6}$

. $\frac{2(3z-8)}{9}-\frac{5(z-3)}{3}=\frac{3(z-8)}{4}+\frac{17}{36}$

. $\frac{3t-5}{8}+\frac{t+12}{12}=1$

. $\frac{x+4}{3}-\frac{x-4}{5}=2+\frac{3x-1}{15}$

. $1+\frac{2n}{3}-\frac{1}{2}-n=\frac{1-n}{3}$

. $3k+\frac{5k-3}{2}=37$

. $2.4x+\frac{3(x-1.6)}{5}=\frac{8.4x-4.9}{2}$

. $\left(\frac{3x}{4}-\frac{2}{5}\right)+\left(\frac{2x}{3}+0.6\right)-\left(\frac{7x}{12}-0.3\right)=5.8$

. $x+\frac{3}{2}-\frac{4x-3}{4}=1-\frac{5x-12}{6}$

. $8(x-2)+3=7x+\frac{2x-1}{2}-3$

. $\frac{(2y+1)^2}{4}-\frac{3(y+2)^2}{6}=\frac{y(y-2)}{2}$

. $\frac{(z-2)^2}{3}+\frac{z(z-3)}{5}=\frac{(8z+7)(z-1)}{15}+\frac{4}{5}$

.

. $x(x-3)=0$

. $(x+5)(x-1)=0$

. $(x-1)^2-4=0$

. $4(x-1)^2-(2x-3)^2=0$

. $x^2-6x=0$

. $2x^2-2=0$

.

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

. $5x(3x-2)=0$

. $7y(9y+4)=0$

. $8p(7-5p)=0$

. $(x-5)(2x-7)=0$

. $(5x+9)(8-3x)=0$

. $(7p-5)(2-9q)=0$

. $(6-5h)(15+11k)=0$

.

. $2x^2+5x=0$

. $(x+2)^2=0$

. $7x-8x^2=0$

. $2x^2=7x$

. $(x-3)^2=25$

. $(x+3)^2=16$

. $(2x+5)^2=7(2x+5)$

. $(x-2)^2=9(x-2)$

. $5(x^2-1)=0$

. $x^2-4=12$

.

. $2x^2+7x-4=0$

. $5x^2+17x+6=0$

. $2x^2-3x-14=0$

. $12x^2-7x-12=0$

. $12x^2-x=6$

. $6x^2=x+15$

. $9x^2-3x=20$

. $8x^2-22x=63$

. $8x^2+10x-3=0$

. $10-19x-15x^2=0$

. $9x^2-6x-120=0$

. $3-4x-7x^2=0$

. $x^2=10x+24$

. $8-18x-5x^2=0$

. $x^2+4=8x-8$

. $x(2x+5)=3$

. $2x^3-5x^2-3x=0$

. $6x^3-x^2=x$

. $(6x+5)(x-1)=-3$

. $6(x-1)^2=16-8x$

.

. $(2x-1)^2=(4x-5)(x+3)$

. $4(x^2-2x-3)=5(x-3)$

. $(3x-2)(2x+1)=(6x+5)(x-2)+7$

. $6x^2+x-3=9$

.

. $\frac{1}{x}-\frac{1}{x+3}=\frac{1}{36}$
. $\frac{x-3}{4}+\frac{1}{x-1}=\frac{1}{2}$
. $9x+\frac{4}{x-1}=46$
. $\frac{x-3}{2}=\frac{4}{x+4}$
. $\frac{3}{x}=\frac{2x-7}{5}$
. $\frac{2}{x+2}-\frac{3-x}{2}=0$
. $\frac{3x-1}{4}-\frac{1}{x}=\frac{3(2x+1)}{8}$
. $\frac{3x-1}{x-1}-1=\frac{2x+8}{x+1}$

.

. $\frac{5}{x}=\frac{6}{7}$
. $\frac{7}{2x}=3$
. $\frac{3}{x-2}=\frac{1}{2}$
. $\frac{5}{x-4}-3=0$
. $\frac{9}{5-2x}+7=0$
. $\frac{2x}{5x-4}+\frac{1}{3}=0$
. $\frac{2}{5x}=\frac{4}{x-1}$
. $\frac{7}{2x-1}=\frac{3}{x-4}$
. $\frac{x+2}{3}=\frac{2x-1}{14}$
. $\frac{2a-5}{7}=\frac{3a+4}{9}$
. $\frac{3}{a+1}+\frac{1}{2a+1}=0$
. $\frac{5}{2x-5}-\frac{4}{7x+1}=0$
. $\frac{3}{1+2x}=\frac{5}{3+4x}$
. $\frac{4}{x}+1\frac{1}{2}=\frac{5}{2x}$
. $\frac{10}{3x}-2=\frac{2}{3}$
. $\frac{3(x-1)}{2^2}+\frac{2x}{5}=0$
. $\frac{2^2}{7x-9}-\frac{5}{6x-7}=0$
. $\frac{3x}{10}+\frac{x-1}{2}=0$
. $\frac{3x}{8}-\frac{x}{4}=\frac{1}{2}$
. $\frac{x}{3}-\frac{3(x+5)}{4}=\frac{3}{7}$
. $\frac{2x-3}{7}+\frac{3}{4}=\frac{5x-6}{2}$

.

. $x=8-\frac{7}{x}$
. $x=\frac{3}{x+2}$
. $\frac{84}{x-4}=1+\frac{75}{x}$
. $x-2=\frac{9}{x-2}$
. $3-x=\frac{8}{x+3}$
. $\frac{2x}{2x-3}+1=\frac{1}{2-3x}$
. $\frac{1}{x+2}+\frac{3}{x+4}=\frac{4}{x+3}$
. $\frac{3}{x+1}=\frac{8}{x+2}-\frac{5}{x+3}$
. $\frac{1}{x+3}+\frac{4}{5}=\frac{x}{4-x}$
. $\frac{5}{2x-7}-\frac{6}{x-7}=0$
. $\frac{x}{x-1}+\frac{x}{x+1}=3+\frac{1}{1-x^2}$
. $\frac{6x}{2x-1}=2x$

.

. $\frac{2x}{3}-5=\frac{5x}{2}-3$

. $\frac{x-1}{3}-\frac{5}{12}=x+\frac{1}{4}$

. $\frac{x+1}{3}-\frac{7}{18}=\frac{x}{4}$

. $\frac{1}{3}\left(\frac{1}{5x}-3\right)=\frac{1}{2}\left(2-\frac{1}{x}\right)$

. $\frac{1}{2}(5x+3)+2=\frac{1}{3}(1-2x)$

. $\frac{3}{5}(2x-5)=1-\frac{2}{5}(x+1)$

. $\frac{1}{3}(x-3)+3=x+2(x-1)$

. $x-\frac{1}{2}=1-\frac{x-1}{3}$

. $\frac{x-4}{3}-\frac{2x-1}{2}=4$

. $\frac{3}{x-4}-\frac{x-5}{(x-4)(2x+3)}=\frac{4}{2x+3}$

. $\frac{3t}{(t-1)(3t-2)}-\frac{5}{t-1}=\frac{3}{3t-2}$

. $\frac{x-2}{2}=\frac{4x+12}{3x}$

. $\frac{x+1}{x-3}=\frac{x+3}{x-7}$

. $\frac{4}{x-12}-\frac{4}{x}=\frac{1}{60}$

. $\frac{x}{x+3}=\frac{2x-4}{2x+9}$

. $\frac{3}{x+1}=\frac{2}{x^2-1}$

. $\frac{1}{x}=\frac{1}{20}-\frac{1}{x+30}$

. $\frac{x+1}{x-2}=\frac{3x-1}{x-1}$

. $\frac{1}{x-1}=\frac{1}{2x+1}+\frac{1}{2x-3}$

. $\frac{1}{x+1}-\frac{2}{x-2}=\frac{1}{3-x}$

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ផ្នែកលំហាត់បន្ថែម ពីឯកសារផ្សេងៗ

៥. ទិសមីការដឺក្រេទី១មានមួយអញ្ញាត

៦. បំណែងចែកប្រែកង់

៧. មធ្យមស្ថិតិ

៨. ប្រូចាម

៩. ចម្ងាយរវាងពីរចំណុច

១០. សមីការបន្ទាត់

១០.១ ការសង់បន្ទាត់

១០.១.១ ការសង់បន្ទាត់តាមតារាងតម្លៃលេខ

១០.១.២ ការសង់បន្ទាត់កាត់តាមពីរចំណុច

១០.២ សមីការនៃបន្ទាត់

១០.២.១ សមីការនៃបន្ទាត់កាត់តាមពីរចំណុច

ជាទូទៅ ១២ $A(x_A,y_A)$ $B(x_B,y_B)$ $\dfrac{y_B-y_A}{x_B-x_A}=\dfrac{y-y_A}{x-x_A}$

១០.២.២ លក្ខខណ្ឌនៃបន្ទាត់ស្រប

ជាទូទៅ ១៣ $(D_1):y_1=a_1x+b_1$ $(D_2):y_2=a_2x+b_2$ $a_1=a_2$

១០.២.៣ លក្ខខណ្ឌនៃបន្ទាត់កែង

ជាទូទៅ ១៤ $(D_1):y_1=a_1x+b_1$ $(D_2):y_2=a_2x+b_2$ $a_1\times a_2=-1$

ផ្នែកលំហាត់មានដំណោះស្រាយ

. $y=2x+1$

. $A(0,2)$. $A(-1,1)$. $A(0,1)$. $A(2,-1)$

. $y=x+2$

. $A(0,2)$. $A(-1,1)$. $A(0,1)$. $A(2,-1)$

. $y=3x$

. $A(0,2)$. $A(-1,1)$. $A(0,0)$. $A(2,-1)$

. $y=-3x+2$

. $A(0,2)$. $A(-1,1)$. $A(1,-1)$. $A(2,-1)$

. $y=x-2$

. $A(0,2)$. $A(-1,1)$. $A(1,-1)$. $A(2,-1)$

. $y=x-2$

. $A(0,2)$. $A(-1,1)$. $A(1,-1)$. $A(2,-1)$

. $y=x+2$

. $A(0,2)$. $A(-1,1)$. $A(1,3)$. $A(2,-1)$

. $y=3x+7$

. $A(0,2)$. $A(-1,1)$. $A(1,3)$. $A(0,7)$

. $y=\frac{x}{2}+1$

. $A(0,2)$. $A(-1,1)$. $A(-2,0)$. $A(0,7)$

. $y=-\frac{x}{2}+3$

. $A(0,2)$. $A(-1,1)$. $A(-2,2)$. $A(0,7)$

. $A(0,1)$ $y=2x+5$

. $y=2x+3$. $y=2x-3$. $y=2x+1$. $y=-2x+1$

. $A(0,3)$ $y=2x+5$

. $y=2x+3$. $y=2x-3$. $y=2x+1$. $y=-2x+1$

. $A(0,-3)$ $y=2x+5$

. $y=2x+3$. $y=2x-3$. $y=2x+1$. $y=-2x+1$

. $A(0,0)$ $y=2x+5$

. $y=2x+3$. $y=2x-3$. $y=2x$. $y=-2x+1$

. $A(1,5)$ $y=2x+5$

. $y=2x+3$. $y=2x-3$. $y=2x+3$. $y=-2x+1$

. $y=2x+5$

. $y=\frac{x}{2}+3$. $y=-\frac{x}{2}+3$. $y=\frac{x}{2}-3$. $y=\frac{x}{2}+7$

. $y=-2x+5$

. $y=\frac{x}{2}+3$. $y=-\frac{x}{2}+3$. $y=\frac{x}{2}-3$. $y=\frac{x}{2}+7$

. $y=-\frac{x}{2}+5$

. $y=-2x+3$. $y=2x+3$. $y=\frac{x}{2}-3$. $y=\frac{x}{2}+7$

. $y=-\frac{x}{3}+5$

. $y=-3x+3$. $y=3x+3$. $y=\frac{x}{3}-3$. $y=\frac{x}{3}+7$

. $2y-3x+10=0$

. $y=-3x+3$. $y=3x+3$. $y=-\dfrac{2x}{3}-3$. $y=-\dfrac{3x}{2}+7$

. $A(0,0)$ $y=2x+5$

. $y=\dfrac{x}{2}$. $y=-\dfrac{x}{2}+3$. $y=-\dfrac{x}{2}$. $y=\dfrac{x}{2}+3$

. $A(3,2)$ $y=3x+5$

. $y=\dfrac{x}{2}$. $y=-\dfrac{x}{3}+3$. $y=-\dfrac{x}{3}$. $y=\dfrac{x}{3}+3$

. $A(2,0)$ $y=\dfrac{2x}{3}+5$

. $y=-\dfrac{3x}{2}$. $y=-\dfrac{3x}{2}+3$. $y=-\dfrac{x}{3}$. $y=\dfrac{x}{3}+3$

. $A(0,1)$ $3y+x+6=0$

. $y=-3x+1$. $y=3x+5$. $y=-\dfrac{x}{3}$. $y=\dfrac{x}{3}+3$

. $A(1,8)$ $3y-x+6=0$

. $y=-3x+1$. $y=3x+5$. $y=-\dfrac{x}{3}$. $y=\dfrac{x}{3}+3$

. $A(0,1)$ $a=2$

. $y=2x-1$. $y=2x$. $y=2x+1$. $y=2x-5$

. $A(1,-1)$ $a=-2$

. $y=-2x-1$. $y=-2x$. $y=-2x+1$. $y=-2x-5$

. $A(-1,-3)$ $a=-2$

. $y=-2x-1$. $y=-2x$. $y=-2x+1$. $y=-2x-5$

. $A(1,-3)$ $a=-2$

. $y=-2x-1$. $y=-2x$. $y=-2x+1$. $y=-2x-5$

. $A(0,0)$ $a=-2$

. $y=-2x-1$. $y=-2x$. $y=-2x+1$. $y=-2x-5$

ផ្នែកលំហាត់ត្រៃរិះ

.

. $a=2, \quad (-4,1)$

. $a=-\frac{2}{3}, \quad (1,5)$

.

. $A(3,1) \quad ,B(6,-2)$

. $A(-2,-1) \quad ,B(-4,-4)$

. $A(3,-4) \quad ,B(-9,2)$

. $A(1,4) \quad ,B(4,-2)$

.

. $A(-6,1) \quad ,B(6,-2)$

. $A(-4,-4) \quad ,B(-2,6)$

. $A(3,-4) \quad ,B(2,6)$

. $A(2,-1) \quad ,B(-2,1)$

. $A(2,0) \quad ,B(1,-8)$

. $A(0,5) \quad ,B(3,-2)$

.

. $2x+3y=-11$

. $4x+8y-1=0$

. $y=-\frac{2x}{3}+1$

.

. $y=x+4 \quad ,x-y+5=0$

. $3x-y+4=0 \quad ,y-2=3(x+1)$

. $y=2x-3 \quad ,x+2y+1=0$

. $2y=5x+6 \quad ,5x+2y-1=0$

. ?

. $y=3x+1, \quad y=-\frac{x}{3}$

. $y=2x+5, \quad x-2y+6=0$

. $y=5x-4, \quad x+5y-1=0$

.

. $y=3x-4 \quad A(5,1)$

. $3x-2y+5=0 \quad A(-2,4)$

. $2x+2y+9=0 \quad A(2,5)$

. $x-5y+6=0 \quad A(0,0)$

.

. $y=\frac{x}{2}+4$ $A(5,0)$

. $x-y+5=0$ $A(0,0)$

. $8x+3y+1=0$ $A(-1,4)$

. $y=-x+6$ $A(-4,-\frac{2}{3})$

. . (d_1) $A(-3,5)$ -2

. $(d_2):y=(m-1)x+2$ m (d_2) (d_1) m (d_2) (d_1) ? m

. B $(6,0)$ A B $y'y$

. $A(0,6),B(-3,0)$ $C(6,0)$

. AB AC

. (d) C AB

. (d') B AC

. . $A(6,2)$ $B(2,-2)$ AB

. $C(-2,6)$ CAB

. (d) C AB

. (d) $M(-5,3)$

. $A(-6,0),B(6,0)$ $C(3,0)$

. ABC

. ABC

. $(a,6)$ $(2,a)$ $4x+2y=b$ a b

ផ្នែកលំហាត់បន្ថែម ពីឯកសារផ្សេងៗ

១១. ប្រព័ន្ធសមីការដឺក្រេទី១មានពីរអញ្ញាត

១១.១ ដំណោះស្រាយប្រព័ន្ធសមីការតាមក្រាភិច

ជាទូទៅ ១៥ $\begin{cases} ax+by+c=0 \\ a'x+b'y+c'=0 \end{cases}$ $a,b,c,a',b',c' \quad x,y$

- $\frac{a}{a'} \neq \frac{b}{b'}$
- $\frac{a}{a'} = \frac{b}{b'} = \frac{c}{c'}$
- $\frac{a}{a'} = \frac{b}{b'} \neq \frac{c}{c'}$

១១.២ ដំណោះស្រាយប្រព័ន្ធសមីការតាមវិធីជំនួស

១១.៣ ដំណោះស្រាយប្រព័ន្ធសមីការតាមវិធីបូកបំបាត់

១១.៤ ដំណោះស្រាយប្រព័ន្ធសមីការតាមដេទែមីណង់

$$\begin{cases} ax+by+c=0 \\ a'x+b'y+c'=0 \end{cases} \qquad a,b,c,a',b',c' \quad x,y$$

$$D=\begin{vmatrix} a_1 & b_1 \\ a_2 & b_2 \end{vmatrix}=a_1b_2-b_1a_2 \quad ; D_x=\begin{vmatrix} c_1 & b_1 \\ c_2 & b_2 \end{vmatrix}=c_1b_2-b_1c_2 \quad ; D_y=\begin{vmatrix} a_1 & c_1 \\ a_2 & c_2 \end{vmatrix}=a_1c_2-c_1a_2$$

$$\boxed{x=\frac{D_x}{D};y=\frac{D_y}{D}}$$

ផ្នែកលំហាត់មានដំណោះស្រាយ

ផ្នែកលំហាត់ត្រៃរិះ

. ?

. $\begin{cases} x-y=8 \\ x+y=-2 \end{cases}$ $,(3,-5)$

. $\begin{cases} y=3x \\ x+y=3 \end{cases}$ $,(0,0)$

. $\begin{cases} 2x+y=3 \\ x+2y=4 \end{cases}$ $,(2,-1)$

. $\begin{cases} x-y=3 \\ 2x-2y=6 \end{cases}$ $,(3,-5)$

.

. $\begin{cases} x-4y=1 \\ x+y=4 \end{cases}$

. $\begin{cases} 2x+y=6 \\ y=8-2x \end{cases}$

. $\begin{cases} y-2=0 \\ x+3=0 \end{cases}$

. $\begin{cases} x+y=1 \\ \frac{x}{2}+\frac{y}{2}=2 \end{cases}$

. $\begin{cases} 2x-3y=13 \\ x-2y=8 \end{cases}$

. $\begin{cases} x+y=3 \\ y=\frac{7-2x}{2} \end{cases}$

. $\begin{cases} y=3x \\ x+y=4 \end{cases}$

. $\begin{cases} y=7-x \\ x=y+3 \end{cases}$

.

. $\begin{cases} 2x+2y=2 \\ 5x-2y=9 \end{cases}$

. $\begin{cases} 8x-3y=17 \\ -7x+6y=2 \end{cases}$

. $\begin{cases} 2x+2y=8 \\ 2x-y=5 \end{cases}$

. $\begin{cases} 7x-10y=-1 \\ 3x+2y=-13 \end{cases}$

. $\begin{cases} 3x+3y=9 \\ 4x-3y=-16 \end{cases}$

. $\begin{cases} 4x-3y=15 \\ 8x+2y=-10 \end{cases}$

. $\begin{cases} 2x+8y=-1 \\ -10x+4y=16 \end{cases}$

. $\begin{cases} 4x-3y=9 \\ -3x+5y=7 \end{cases}$

. $\begin{cases} 5x+3y+9=0 \\ 3x-4y+17=0 \end{cases}$

. $\begin{cases} 3x+4y=-1 \\ 7x+9y=0 \end{cases}$

. $\begin{cases} 6x-5=2x-7y \\ 2x=5y-6 \end{cases}$

. $\begin{cases} 4x-2y=-19 \\ -6x-3y=1.5 \end{cases}$

.

. $\begin{cases} x-2y=16 \\ 4x+y=1 \end{cases}$

. $\begin{cases} x+2y=6 \\ 4x+3y=4 \end{cases}$

. $\begin{cases} y=-4x+5 \\ 2x-3y=13 \end{cases}$

. $\begin{cases} 5x-y=-23 \\ 3x-y=-15 \end{cases}$

. $\begin{cases} -2x+y=2 \\ 2x+3y=6 \end{cases}$

. $\begin{cases} x+5y=11 \\ 4x-y=2 \end{cases}$

. $\begin{cases} 2x+3y=11 \\ 3x+3y=18 \end{cases}$

. $\begin{cases} 5x+3y=4 \\ 4x-2y=1 \end{cases}$

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ផ្នែកលំហាត់បន្ថែម ពីឯកសារផ្សេងៗ

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. $\begin{cases} x+y=7 \\ x-y=3 \end{cases}$

. $\begin{cases} x-3y=7 \\ x-y=3 \end{cases}$

. $\begin{cases} 3x+y=13 \\ 5x-y=35 \end{cases}$

. $\begin{cases} 3x+2y+7=0 \\ 5x-2y+1=0 \end{cases}$

. $\begin{cases} 3x+w=17 \\ 3x-w=19 \end{cases}$

. $\begin{cases} 3x+2y=8 \\ 2y-5x=8 \end{cases}$

. $\begin{cases} 3x+3=6y \\ x-y=1 \end{cases}$

. $\begin{cases} 3x=y+1 \\ y-x=3 \end{cases}$

. $\begin{cases} 5x-3y=23 \\ x-7y=11 \end{cases}$

. $\begin{cases} 15x-7y=14\frac{1}{4} \\ 5x-y=3\frac{3}{4} \end{cases}$

. $\begin{cases} 5x-8y=23\frac{1}{2} \\ 4x+y=22\frac{1}{2} \end{cases}$

. $\begin{cases} 4x-6y=12 \\ 2x+4y=-4.5 \end{cases}$

. $\begin{cases} 3x-4y=30 \\ 2x-7y=33 \end{cases}$

. $\begin{cases} 3x-5y=19 \\ 5x+2y=11 \end{cases}$

. $\begin{cases} 3x+2y=13 \\ 5x-4y=18 \end{cases}$

. $\begin{cases} 3x-4y=30 \\ 2x-7y=33 \end{cases}$

. $\begin{cases} 3x-5y=19 \\ 5x+2y=11 \end{cases}$

. $\begin{cases} 3x+2y=13 \\ 5x-4y=18 \end{cases}$

. $\begin{cases} 4x-2y=5 \\ 2x+3y=-5 \end{cases}$

. $\begin{cases} 3x+10y=13 \\ 24x-36y=17 \end{cases}$

. $\begin{cases} 3x-y=7 \\ 2x+5y=-1 \end{cases}$

. $\begin{cases} \frac{x}{2}-\frac{y}{3}-1=0 \\ x+6y+8=0 \end{cases}$

. $\begin{cases} 3x-2y=8 \\ \frac{x}{8}+\frac{y}{2}=1\frac{1}{4} \end{cases}$

. $\begin{cases} 4x-3y=8 \\ 6x+y=1 \end{cases}$

. $\begin{cases} x=9-0.5y \\ y=11+\frac{x}{3} \end{cases}$

. $\begin{cases} 3x+1.4y=0.1 \\ x-3.6y=10.2 \end{cases}$

.

. $\begin{cases} x+y=7 \\ x-y=3 \end{cases}$

. $\begin{cases} x-3y=7 \\ x-y=3 \end{cases}$

. $\begin{cases} 3x+y=13 \\ 5x-y=35 \end{cases}$

. $\begin{cases} 3x+2y+7=0 \\ 5x-2y+1=0 \end{cases}$

. $\begin{cases} 3x+w=17 \\ 3x-w=19 \end{cases}$

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. $\begin{cases} 3x+3=6y \\ x-y=1 \end{cases}$

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. $\begin{cases} 3x+2y=13 \\ 5x-4y=18 \end{cases}$

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.
$$\begin{cases} 3x-5y=19 \\ 5x+2y=11 \end{cases}$$
.
$$\begin{cases} 3x+2y=13 \\ 5x-4y=18 \end{cases}$$
.
$$\begin{cases} 4x-2y=5 \\ 2x+3y=-5 \end{cases}$$
.
$$\begin{cases} 3x+10y=13 \\ 24x-36y=17 \end{cases}$$
.
$$\begin{cases} 3x-y=7 \\ 2x+5y=-1 \end{cases}$$
.
$$\begin{cases} \frac{x}{2}-\frac{y}{3}-1=0 \\ x+6y+8=0 \end{cases}$$
.
$$\begin{cases} 3x-2y=8 \\ \frac{x}{8}+\frac{y}{2}=1\frac{1}{4} \end{cases}$$
.
$$\begin{cases} 4x-3y=8 \\ 6x+y=1 \end{cases}$$
.
$$\begin{cases} x=9-0.5y \\ y=11+\frac{x}{3} \end{cases}$$
.
$$\begin{cases} 3x+1.4y=0.1 \\ x-3.6y=10.2 \end{cases}$$

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$$\begin{cases} x+y=7 \\ x-y=3 \end{cases}$$
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.
$$\begin{cases} 3x+y=13 \\ 5x-y=35 \end{cases}$$
.
$$\begin{cases} 3x+2y+7=0 \\ 5x-2y+1=0 \end{cases}$$
.
$$\begin{cases} 3x+w=17 \\ 3x-w=19 \end{cases}$$
.
$$\begin{cases} 3x+2y=8 \\ 2y-5x=8 \end{cases}$$
.
$$\begin{cases} 3x+3=6y \\ x-y=1 \end{cases}$$
.
$$\begin{cases} 3x=y+1 \\ y-x=3 \end{cases}$$
.
$$\begin{cases} 5x-3y=23 \\ x-7y=11 \end{cases}$$
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. $\begin{cases} 3x+2y=13 \\ 5x-4y=18 \end{cases}$

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. $\begin{cases} 3x-5y=19 \\ 5x+2y=11 \end{cases}$

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. $\begin{cases} 4x-2y=5 \\ 2x+3y=-5 \end{cases}$

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. $\begin{cases} 3x-y=7 \\ 2x+5y=-1 \end{cases}$

. $\begin{cases} \frac{x}{2}-\frac{y}{3}-1=0 \\ x+6y+8=0 \end{cases}$

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. $\begin{cases} 4x-3y=8 \\ 6x+y=1 \end{cases}$

. $\begin{cases} x=9-0.5y \\ y=11+\frac{x}{3} \end{cases}$

. $\begin{cases} 3x+1.4y=0.1 \\ x-3.6y=10.2 \end{cases}$

.

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$$\begin{cases} 4x-6y=12 \\ 2x+4y=-4.5 \end{cases}$$
.
$$\begin{cases} 3x-y=7 \\ 2x+5y=-1 \end{cases}$$
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$$\begin{cases} x=9-0.5y \\ y=11+\frac{x}{3} \end{cases}$$
.
$$\begin{cases} 3x-5y=19 \\ 5x+2y=11 \end{cases}$$
.
$$\begin{cases} 3x+1.4y=0.1 \\ x-3.6y=10.2 \end{cases}$$

.

.
$$\begin{cases} x+\frac{y}{2}=9 \\ 3x-2y=13 \end{cases}$$
.
$$\begin{cases} 2y-7x+69=0 \\ 4x-3y-45=0 \end{cases}$$
.
$$\begin{cases} x+4y=9 \\ 3x-4y+31=0 \end{cases}$$
.
$$\begin{cases} 14x+6y=9 \\ 6x-15y=-2 \end{cases}$$

. $\begin{cases} 2x-3y=13 \\ 3x-12y=42 \end{cases}$

. $\begin{cases} 5x-3y=1.4 \\ 2x+5y=14.2 \end{cases}$

. $\begin{cases} 5x+3y=29 \\ 2x+7y=29 \end{cases}$

. $\begin{cases} 2x-2+12y=9 \\ 4x-2y=9 \end{cases}$

. $\begin{cases} 3x-4y=2 \\ 2x+5y=9 \end{cases}$

. $\begin{cases} x+y=5 \\ 2x+5y=19 \end{cases}$

.

. $\begin{cases} x+\dfrac{y}{2}=9 \\ 3x-2y=13 \end{cases}$

. $\begin{cases} x+4y=9 \\ 3x-4y+31=0 \end{cases}$

. $\begin{cases} 2y-7x+69=0 \\ 4x-3y-45=0 \end{cases}$

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. $\begin{cases} x+y=5 \\ 2x+5y=19 \end{cases}$

.

. $\begin{cases} x+\dfrac{y}{2}=9 \\ 3x-2y=13 \end{cases}$

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. $\begin{cases} 14x+6y=9 \\ 6x-15y=-2 \end{cases}$

. $\begin{cases} 2x-3y=13 \\ 3x-12y=42 \end{cases}$

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. $\begin{cases} 2x-2+12y=9 \\ 4x-2y=9 \end{cases}$

. $\begin{cases} 3x-4y=2 \\ 2x+5y=9 \end{cases}$

. $\begin{cases} x+y=5 \\ 2x+5y=19 \end{cases}$

១២. ទ្រឹស្តីបទពីតាគ័រ

១៣. រទេះ និង បង្ហាត់

១៤. លក្ខណៈមុំនៃរង្វង់

១៥. ទ្រឹស្តីបទតាឡេស

១៦. ត្រីកោណដូចគ្នា

១៧. ពហុគោណ

១៨. សូលីត

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