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इ-पाठशाला कार्यक्रम

Class 9th

MATHS

निर्देशांक ज्यामिति

RAPID REVISION



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14. k का मान ज्ञात कीजिए जबकि निम्नलिखित स्थितियों में से प्रत्येक स्थिति में (x – 1), p(x) का एक गुणनखंड हो :

(i) $p(x) = x^2 + x + k$

$x-1=0$

$x=1$

हल :- $x=1$

$p(1)=0$

$1^2+1+k=0$

$k=-2$

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(ii) $p(x) = 2x^2 + kx + \sqrt{2}$

$x - 1$

$x - 1 = 0$

$x = 1$

$p(1) = 0$

$2(1)^2 + k(1) + \sqrt{2} = 0$

$2 + k + \sqrt{2} = 0$

$k = -2 - \sqrt{2}$

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15. यदि $x - 2$, बहुपद $x^3 - 3x^2 + kx + 2$ का गुणनखंड है, तो k ज्ञात कीजिए।

हल :- $x - 2 = 0$

$x = 2$

$p(x) = x^3 - 3x^2 + kx + 2$

$p(2) = 0$

$2^3 - 3(2)^2 + k(2) + 2 = 0$

$8 - 12 + 2k + 2 = 0$

$10 - 12 + 2k = 0$

$-2 + 2k = 0$

$2k = 2$

$k = 1$

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(1) $(a+b)^2$
$= a^2+b^2+2ab$

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

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

16. $x^2 - 9$ का सही गुणनखंडन है:

अ $(x - 3)^2$

ब $(x + 3)^2$

स $(x - 3)(x + 3)$

द $(x - 9)(x + 1)$

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

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

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



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17. $(a - b)^2$ का सही प्रसार है:

अ $a^2 - b^2$

ब $a^2 - 2ab + b^2$

स $a^2 + 2ab + b^2$

द $a^2 + b^2$

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$12 \times 1 = 12$

$-4 \quad -3$

18. गुणनखंड ज्ञात कीजिए :

(i) $12x^2 - 7x + 1$

$p(x) = 12x^2 - 7x + 1$

$= 12x^2 - 4x - 3x + 1$

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

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

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



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(ii) $2x^2 + 7x + 3$

$2 \times 3 = 6$

6 1

$p(x) = 2x^2 + 7x + 3$

$= 2x^2 + 6x + x + 3$

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

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

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(iii) $6x^2 + 5x - 6$

H.W.



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$x = 0, 1, -1, 2, -2$

19. गुणनखंड ज्ञात कीजिए :

(i) $x^3 - 2x^2 - x + 2$

$x^3 - 2x^2 - x + 2$

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

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

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

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

$x = 1$ ✓

$1^3 - 2(1)^2 - 1 + 2$

$1 - 2 - 1 + 2 = 0$

$x - 1 = 0$

$|x-2| = -2$



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$x \times ? = x^3$

x^2

$x \times ? = -x^2$

$-x$

$x^2 - x - 2$

$x - 1 \;\big|\; x^3 - 2x^2 - x + 2$

$-x^3 + x^2$

$-x^2 - x + 2$

$+x^2 - x$

$-2x + 2$

$+2x - 2$

0



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$x+1=0$

(ii) $x^3 - 3x^2 - 9x - 5$

$x = 1$

$1^3 - 3(1)^2 - 9(1) - 5$

$1 - 3 - 9 - 5$

$x = -1$

$(-1)^3 - 3(-1)^2 - 9(-1) - 5$

$-1 - 3 + 9 - 5 = -9 + 9 = 0$

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$(x+1)(x^2-4x-5)$

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

$(x+1)(x(x-5)+1(x-5))$

$(x+1)(x-5)(x+1)$

$x+1 \;\overline{)\; x^3-3x^2-9x-5}$

x^2-4x-5

$-x^3+x^2$

$-4x^2-9x-5$

$-4x^2-4x$

$-5x-5$

$+5x+5$

0

$1x-5$

$=-5$

$1 \quad -5$

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(iii) $x^3 + 13x^2 + 32x + 20$

H.W.



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बीजीय सर्वसमिकाएं

I.	$(x + y)^2 = x^2 + 2xy + y^2$
II.	$(x - y)^2 = x^2 - 2xy + y^2$
III.	$(x^2 - y^2) = (x - y)(x + y)$
IV.	$(x + a)(x + b) = x^2 + x(a + b) + ab$

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$$(x+a)(x+b) = x^2 + (a+b)x + ab$$

$$(x+3)(x+5) = x^2 + (3+5)x + 3\times5$$

$$= x^2 + 8x + 15$$

$$(x-4)(x+1) = x^2 + (-4+1)x + (-4\times1)$$

$$= x^2 - 3x - 4$$

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$$\begin{array}{r} 96 \\ \times\ 98 \\ \hline \end{array}$$

$96 \times 98 = (100-4)(100-2)$

$(90+6)(90+8)$

$= (100)^2 + 100(-4-2) + (-4\times-2)$

$= 10000 - 600 + 8$

$= 9400 + 8 = 9408$

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

$(5+x)(5-x) = 5^2 - x^2 = 25 - x^2$

$96 \times 104 = (100-4)(100+4)$

$= (100)^2 - 4^2$

$= 10000 - 16 = 9984$

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109×109

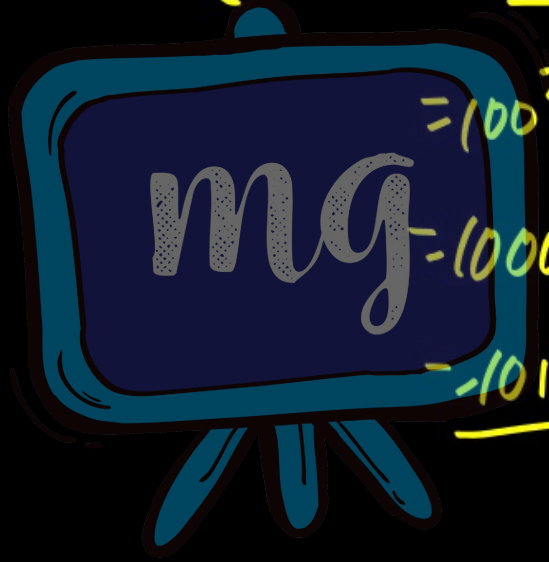
$(a+b)^2 = a^2 + b^2 + 2ab$

$(109)^2 = (100+9)^2$

$= 100^2 + 9^2 + 2 \times 100 \times 9$

$= 10000 + 81 + 1800$

$= 11881$



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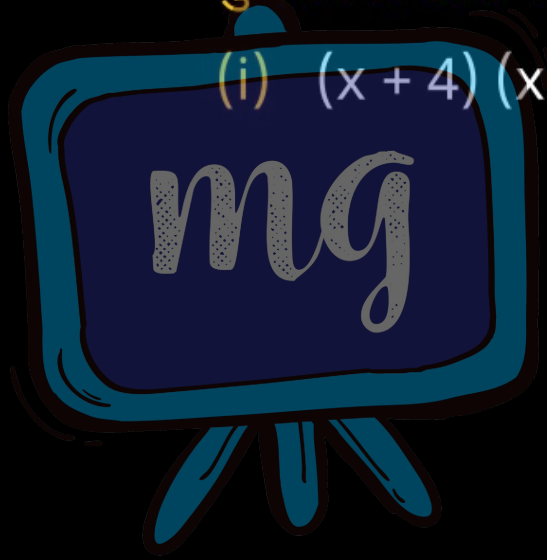
V.	$(x + y + z)^2 = x^2 + y^2 + z^2 + 2xy + 2yz + 2zx$
VI.	$(x + y)^3 = x^3 + y^3 + 3xy(x + y)$
VII.	$(x - y)^3 = x^3 - y^3 - 3xy(x - y)$
VIII.	$x^3 + y^3 + z^3 - 3xyz = (x + y + z)(x^2 + y^2 + z^2 - xy - yz - zx)$

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20. उपयुक्त सर्वसमिकाओं का प्रयोग करके निम्नलिखित गुणनफल ज्ञात कीजिए:

(i) $(x + 4)(x + 10)$



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(ii) $(x + 8)(x - 10)$



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(iii) $(3x + 4)(3x - 5)$



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(iv) $\left(y^2+\frac{3}{2}\right)\left(y^2-\frac{3}{2}\right)$



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(v) $(3 - 2x)(3 + 2x)$



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21. सीधे गुणा किए बिना निम्नलिखित गुणनफलों के मान ज्ञात कीजिए:

(i) 103×107



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(ii) 95×96

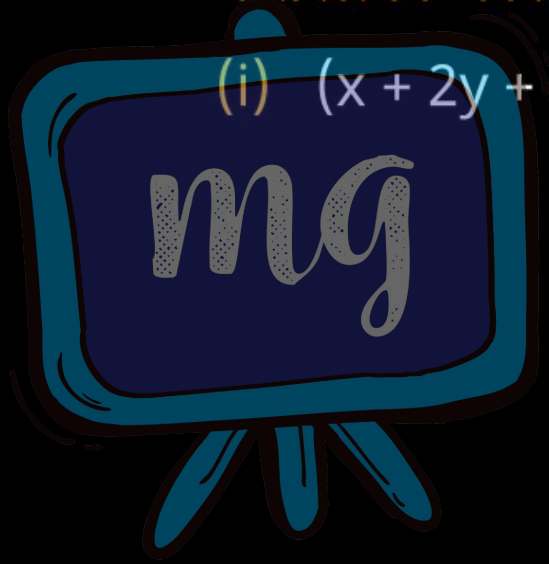


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22. उपयुक्त सर्वसमिकाओं का प्रयोग करके निम्नलिखित में से प्रत्येक का प्रसार कीजिए :

(i) $(x + 2y + 4z)^2$



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(ii) $(2x - y + z)^2$



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23. गुणनखंडन कीजिए:

(i) $4x^2 + 9y^2 + 16z^2 + 12xy - 24yz - 16xz$



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(ii) $2x^2 + y^2 + 8z^2 - 2\sqrt{2}xy + 4\sqrt{2}yz - 8xz$



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24. निम्नलिखित घनों को प्रसारित रूप में लिखिए :

(i) $(2x + 1)^3$



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(ii) $(2a - 3b)^3$



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(iii) $\left[\frac{3}{2}x+1\right]^3$



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25. $(x + 3)^3$ के प्रसार में x का गुणांक है:



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26. उपयुक्त सर्वसमिकाएँ प्रयोग करके निम्नलिखित के मान ज्ञात कीजिए:

(i) $(99)^3$



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(ii) $(102)^3$



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27. उपयुक्त सर्वसमिका से 1033 का मान ज्ञात कीजिए।



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28. निम्नलिखित में से प्रत्येक का गुणनखंड कीजिए:

(i) $8a^3 + b^3 + 12a^2b + 6ab^2$



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(ii) $8a^3 - b^3 - 12a^2b + 6ab^2$



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29. निम्नलिखित में से प्रत्येक का गुणनखंडन कीजिए :

(i) $27y^3 + 125z^3$

