



THE MATH HUB

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ALGEBRAIC EXPRESSIONS IDENTITIES & FACTORIZATION MCQs

100 FULLY SOLVED MCQs

PPSC, FPSC & ONE PAPER EXAMS

NTS • CSS MPT • PMS • Government Job Tests

Expressions • Identities • Expansion • Simplification • Factorization

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ALGEBRAIC EXPRESSIONS, IDENTITIES & FACTORIZATION MCQs | 100 FULLY SOLVED MCQs

Fast Foundation for One-Paper Exams

Like terms Only terms with the same variables and powers can be combined.

Square identities

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

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

Difference of squares

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

Product identity

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

Common factor

$$ax + ay = a(x + y)$$

Exam-speed check Substitute carefully; preserve signs; factor out the greatest common factor first.

Substitution and Evaluation**MCQ 1**If $x = 2$ and $y = 1$, find $3x + 5y + (-1)$.

- A. 10 B. 12
C. 8 D. -10

Solution

$$\begin{aligned} & 3x + 5y + (-1) \\ &= 3(2) + 5(1) + (-1) \\ &= 10 \end{aligned}$$

Final Answer

10

MCQ 2If $x = 3$ and $y = -1$, find $4x + 2y + (0)$.

- A. 12 B. 10
C. 8 D. -10

Solution

$$\begin{aligned} & 4x + 2y + (0) \\ &= 4(3) + 2(-1) + (0) \\ &= 10 \end{aligned}$$

Final Answer

10

MCQ 3If $x = 5$ and $y = 2$, find $2x + 4y + (1)$.

- A. 21 B. 17
C. 19 D. -19

Solution

$$\begin{aligned} & 2x + 4y + (1) \\ &= 2(5) + 4(2) + (1) \\ &= 19 \end{aligned}$$

Final Answer

19

MCQ 4If $x = -2$ and $y = 4$, find $5x + 3y + (2)$.

- A. 6 B. 2
C. -4 D. 4

Solution

$$\begin{aligned} & 5x + 3y + (2) \\ &= 5(-2) + 3(4) + (2) \\ &= 4 \end{aligned}$$

Final Answer

4

MCQ 5If $x = 1$ and $y = 3$, find $6x + 2y + (-2)$.

- A. 10 B. 12
C. 8 D. -10

Solution

$$\begin{aligned} & 6x + 2y + (-2) \\ &= 6(1) + 2(3) + (-2) \\ &= 10 \end{aligned}$$

Final Answer

10

MCQ 6If $x = -3$ and $y = -2$, find $2x + 5y + (-1)$.

- A. -15 B. -17
C. -19 D. 17

Solution

$$\begin{aligned} & 2x + 5y + (-1) \\ &= 2(-3) + 5(-2) + (-1) \\ &= -17 \end{aligned}$$

Final Answer

-17

MCQ 7

If $x = 2$ and $y = 5$, find $7x + 1y + (0)$.

- A. 21 B. 17
C. 19 D. -19

Solution

$$\begin{aligned} & 7x + 1y + (0) \\ &= 7(2) + 1(5) + (0) \\ &= 19 \end{aligned}$$

Final Answer**19****MCQ 8**

If $x = 4$ and $y = -3$, find $3x + 2y + (1)$.

- A. 9 B. 5
C. -7 D. 7

Solution

$$\begin{aligned} & 3x + 2y + (1) \\ &= 3(4) + 2(-3) + (1) \\ &= 7 \end{aligned}$$

Final Answer**7****MCQ 9**

If $x = -1$ and $y = 2$, find $4x + 6y + (2)$.

- A. 10 B. 12
C. 8 D. -10

Solution

$$\begin{aligned} & 4x + 6y + (2) \\ &= 4(-1) + 6(2) + (2) \\ &= 10 \end{aligned}$$

Final Answer**10****MCQ 10**

If $x = 3$ and $y = 1$, find $5x + 2y + (-2)$.

- A. 17 B. 15
C. 13 D. -15

Solution

$$\begin{aligned} & 5x + 2y + (-2) \\ &= 5(3) + 2(1) + (-2) \\ &= 15 \end{aligned}$$

Final Answer**15****MCQ 11**

If $x = 2$ and $y = 4$, find $2x + 3y + (-1)$.

- A. 17 B. 13
C. 15 D. -15

Solution

$$\begin{aligned} & 2x + 3y + (-1) \\ &= 2(2) + 3(4) + (-1) \\ &= 15 \end{aligned}$$

Final Answer**15****MCQ 12**

If $x = -2$ and $y = 1$, find $3x + 4y + (0)$.

- A. 0 B. -4
C. 2 D. -2

Solution

$$\begin{aligned} & 3x + 4y + (0) \\ &= 3(-2) + 4(1) + (0) \\ &= -2 \end{aligned}$$

Final Answer**-2**

MCQ 13If $x = 2$ and $y = -1$, find $6x + 2y + (1)$.

- A. 11 B. 13
C. 9 D. -11

Solution

$$\begin{aligned} & 6x + 2y + (1) \\ &= 6(2) + 2(-1) + (1) \\ &= 11 \end{aligned}$$

Final Answer

11

MCQ 14If $x = 5$ and $y = 2$, find $4x + 1y + (2)$.

- A. 26 B. 24
C. 22 D. -24

Solution

$$\begin{aligned} & 4x + 1y + (2) \\ &= 4(5) + 1(2) + (2) \\ &= 24 \end{aligned}$$

Final Answer

24

MCQ 15If $x = 1$ and $y = -2$, find $3x + 7y + (-2)$.

- A. -11 B. -15
C. -13 D. 13

Solution

$$\begin{aligned} & 3x + 7y + (-2) \\ &= 3(1) + 7(-2) + (-2) \\ &= -13 \end{aligned}$$

Final Answer

-13

MCQ 16If $x = -1$ and $y = 3$, find $5x + 4y + (-1)$.

- A. 8 B. 4
C. -6 D. 6

Solution

$$\begin{aligned} & 5x + 4y + (-1) \\ &= 5(-1) + 4(3) + (-1) \\ &= 6 \end{aligned}$$

Final Answer

6

MCQ 17If $x = 6$ and $y = -1$, find $2x + 3y + (0)$.

- A. 9 B. 11
C. 7 D. -9

Solution

$$\begin{aligned} & 2x + 3y + (0) \\ &= 2(6) + 3(-1) + (0) \\ &= 9 \end{aligned}$$

Final Answer

9

MCQ 18If $x = -2$ and $y = 2$, find $7x + 2y + (1)$.

- A. -7 B. -9
C. -11 D. 9

Solution

$$\begin{aligned} & 7x + 2y + (1) \\ &= 7(-2) + 2(2) + (1) \\ &= -9 \end{aligned}$$

Final Answer

-9

MCQ 19

If $x = 5$ and $y = -4$, find $3x + 5y + (2)$.

- A. -1 B. -5
C. -3 D. 3

Solution

$$\begin{aligned} & 3x + 5y + (2) \\ &= 3(5) + 5(-4) + (2) \\ &= -3 \end{aligned}$$

Final Answer**-3****MCQ 20**

If $x = 2$ and $y = 3$, find $4x + 4y + (-2)$.

- A. 20 B. 16
C. -18 D. 18

Solution

$$\begin{aligned} & 4x + 4y + (-2) \\ &= 4(2) + 4(3) + (-2) \\ &= 18 \end{aligned}$$

Final Answer**18**

MCQ 30Simplify $5x + (5)x + (-4)x$.

- A. $14x$ B. $6x$
C. $-4x$ D. $7x$

Solution

$$5x + (5)x + (-4)x = (5 + 5 + -4)x = 6x$$

Final Answer $6x$ **MCQ 31**Simplify $12x + (-6)x + (3)x$.

- A. $3x$ B. $21x$
C. $9x$ D. $10x$

Solution

$$12x + (-6)x + (3)x = (12 + -6 + 3)x = 9x$$

Final Answer $9x$ **MCQ 32**Simplify $4x + (9)x + (-8)x$.

- A. $21x$ B. $-13x$
C. $6x$ D. $5x$

Solution

$$4x + (9)x + (-8)x = (4 + 9 + -8)x = 5x$$

Final Answer $5x$ **MCQ 33**Simplify $7x + (7)x + (-5)x$.

- A. $9x$ B. $19x$
C. $-5x$ D. $10x$

Solution

$$7x + (7)x + (-5)x = (7 + 7 + -5)x = 9x$$

Final Answer $9x$ **MCQ 34**Simplify $6x + (4)x + (-9)x$.

- A. $19x$ B. $1x$
C. $-7x$ D. $2x$

Solution

$$6x + (4)x + (-9)x = (6 + 4 + -9)x = 1x$$

Final Answer $1x$ **MCQ 35**Simplify $9x + (-1)x + (2)x$.

- A. $6x$ B. $12x$
C. $10x$ D. $11x$

Solution

$$9x + (-1)x + (2)x = (9 + -1 + 2)x = 10x$$

Final Answer $10x$ **Expansion and Standard Identities****MCQ 36**Expand $(x + 3)^2$.

- A. $x^2 + 3x + 9$ B. $x^2 - 6x + 9$
C. $x^2 + 6x - 9$ D. $x^2 + 6x + 9$

Solution

$$\begin{aligned}(x + 3)^2 &= (x)^2 + 2(x)(3) + (3)^2 \\ &= x^2 + 6x + 9\end{aligned}$$

Final Answer $x^2 + 6x + 9$ **MCQ 37**Expand $(x - 5)^2$.

- A. $x^2 - 10x + 25$ B. $x^2 - 5x + 25$
C. $x^2 + 10x + 25$ D. $x^2 - 10x - 25$

Solution

$$\begin{aligned}(x - 5)^2 &= (x)^2 + 2(x)(-5) + (-5)^2 \\ &= x^2 - 10x + 25\end{aligned}$$

Final Answer $x^2 - 10x + 25$ **MCQ 38**Expand $(2x + 3)^2$.

- A. $4x^2 + 6x + 9$ B. $4x^2 + 12x + 9$
C. $4x^2 - 12x + 9$ D. $4x^2 + 12x - 9$

Solution

$$\begin{aligned}(2x + 3)^2 &= (2x)^2 + 2(2x)(3) + (3)^2 \\ &= 4x^2 + 12x + 9\end{aligned}$$

Final Answer $4x^2 + 12x + 9$

MCQ 39Expand $(3x - 2)^2$.

- A. $9x^2 - 6x + 4$ B. $9x^2 + 12x + 4$
 C. $9x^2 - 12x + 4$ D. $9x^2 - 12x - 4$

Solution

$$\begin{aligned}(3x - 2)^2 &= (3x)^2 + 2(3x)(-2) + (-2)^2 \\ &= 9x^2 - 12x + 4\end{aligned}$$

Final Answer

$$9x^2 - 12x + 4$$

MCQ 40Expand $(2x - 5)^2$.

- A. $4x^2 - 10x + 25$ B. $4x^2 + 20x + 25$
 C. $4x^2 - 20x - 25$ D. $4x^2 - 20x + 25$

Solution

$$\begin{aligned}(2x - 5)^2 &= (2x)^2 + 2(2x)(-5) + (-5)^2 \\ &= 4x^2 - 20x + 25\end{aligned}$$

Final Answer

$$4x^2 - 20x + 25$$

MCQ 41Expand $(4x + 1)^2$.

- A. $16x^2 + 8x + 1$ B. $16x^2 + 4x + 1$
 C. $16x^2 - 8x + 1$ D. $16x^2 + 8x - 1$

Solution

$$\begin{aligned}(4x + 1)^2 &= (4x)^2 + 2(4x)(1) + (1)^2 \\ &= 16x^2 + 8x + 1\end{aligned}$$

Final Answer

$$16x^2 + 8x + 1$$

MCQ 42Expand $(3x + 4)^2$.

- A. $9x^2 + 12x + 16$ B. $9x^2 + 24x + 16$
 C. $9x^2 - 24x + 16$ D. $9x^2 + 24x - 16$

Solution

$$\begin{aligned}(3x + 4)^2 &= (3x)^2 + 2(3x)(4) + (4)^2 \\ &= 9x^2 + 24x + 16\end{aligned}$$

Final Answer

$$9x^2 + 24x + 16$$

MCQ 43Expand $(5x - 2)^2$.

- A. $25x^2 - 10x + 4$ B. $25x^2 + 20x + 4$
 C. $25x^2 - 20x + 4$ D. $25x^2 - 20x - 4$

Solution

$$\begin{aligned}(5x - 2)^2 &= (5x)^2 + 2(5x)(-2) + (-2)^2 \\ &= 25x^2 - 20x + 4\end{aligned}$$

Final Answer

$$25x^2 - 20x + 4$$

MCQ 44Expand $(2x + 7)^2$.

- A. $4x^2 + 14x + 49$ B. $4x^2 - 28x + 49$
 C. $4x^2 + 28x - 49$ D. $4x^2 + 28x + 49$

Solution

$$\begin{aligned}(2x + 7)^2 &= (2x)^2 + 2(2x)(7) + (7)^2 \\ &= 4x^2 + 28x + 49\end{aligned}$$

Final Answer

$$4x^2 + 28x + 49$$

MCQ 45Expand $(4x - 3)^2$.

- A. $16x^2 - 24x + 9$ B. $16x^2 - 12x + 9$
 C. $16x^2 + 24x + 9$ D. $16x^2 - 24x - 9$

Solution

$$\begin{aligned}(4x - 3)^2 &= (4x)^2 + 2(4x)(-3) + (-3)^2 \\ &= 16x^2 - 24x + 9\end{aligned}$$

Final Answer

$$16x^2 - 24x + 9$$

MCQ 46Factorize $x^2 - 16$.

- A. $(x - 4)^2$ B. $(x - 4)(x + 4)$
 C. $(x + 4)^2$ D. $(x - 4)(x - 4)$

Solution

$$(x)^2 - 16 = (x - 4)(x + 4)$$

Final Answer

$$(x - 4)(x + 4)$$

MCQ 47Factorize $x^2 - 49$.

A. $(x - 7)^2$

B. $(x + 7)^2$

C. $(x - 7)(x + 7)$

D. $(x - 7)(x - 7)$

Solution

$$(x)^2 - 49 = (x - 7)(x + 7)$$

Final Answer

$$(x - 7)(x + 7)$$

MCQ 48Factorize $4x^2 - 9$.

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

B. $(2x + 3)^2$

C. $(2x - 3)(2x - 3)$

D. $(2x - 3)(2x + 3)$

Solution

$$(2x)^2 - 9 = (2x - 3)(2x + 3)$$

Final Answer

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

MCQ 49Factorize $9x^2 - 25$.

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

B. $(3x - 5)^2$

C. $(3x + 5)^2$

D. $(3x - 5)(3x - 5)$

Solution

$$(3x)^2 - 25 = (3x - 5)(3x + 5)$$

Final Answer

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

MCQ 50Factorize $16x^2 - 4$.

A. $(4x - 2)^2$

B. $(4x - 2)(4x + 2)$

C. $(4x + 2)^2$

D. $(4x - 2)(4x - 2)$

Solution

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

Final Answer

$$(4x - 2)(4x + 2)$$

MCQ 51Factorize $25x^2 - 1$.

A. $(5x - 1)^2$

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

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

D. $(5x - 1)(5x - 1)$

Solution

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

Final Answer

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

MCQ 52Factorize $4x^2 - 49$.

A. $(2x - 7)^2$

B. $(2x + 7)^2$

C. $(2x - 7)(2x - 7)$

D. $(2x - 7)(2x + 7)$

Solution

$$(2x)^2 - 49 = (2x - 7)(2x + 7)$$

Final Answer

$$(2x - 7)(2x + 7)$$

MCQ 53Factorize $9x^2 - 16$.

A. $(3x - 4)(3x + 4)$

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

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

D. $(3x - 4)(3x - 4)$

Solution

$$(3x)^2 - 16 = (3x - 4)(3x + 4)$$

Final Answer

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

MCQ 54Factorize $25x^2 - 9$.

A. $(5x - 3)^2$

B. $(5x - 3)(5x + 3)$

C. $(5x + 3)^2$

D. $(5x - 3)(5x - 3)$

Solution

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

Final Answer

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

MCQ 55Factorize $36x^2 - 4$.

A. $(6x - 2)^2$

B. $(6x + 2)^2$

C. $(6x - 2)(6x + 2)$

D. $(6x - 2)(6x - 2)$

Solution

$$(6x)^2 - 4 = (6x - 2)(6x + 2)$$

Final Answer

$$(6x - 2)(6x + 2)$$

Common-Factor Factorization

MCQ 56Factorize $6x^2 + 9x$.

- A. $3(2x + 3)$ B. $x(6x + 9)$
 C. $3x(2x - 3)$ D. $3x(2x + 3)$

Solution

$$6x^2 + 9x = 3x(2x + 3)$$

Final Answer

$$3x(2x + 3)$$

MCQ 57Factorize $8x^2 + 12x$.

- A. $4x(2x + 3)$ B. $4(2x + 3)$
 C. $x(8x + 12)$ D. $4x(2x - 3)$

Solution

$$8x^2 + 12x = 4x(2x + 3)$$

Final Answer

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

MCQ 58Factorize $10x^2 + 15x$.

- A. $5(2x + 3)$ B. $5x(2x + 3)$
 C. $x(10x + 15)$ D. $5x(2x - 3)$

Solution

$$10x^2 + 15x = 5x(2x + 3)$$

Final Answer

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

MCQ 59Factorize $14x^2 + 21x$.

- A. $7(2x + 3)$ B. $x(14x + 21)$
 C. $7x(2x + 3)$ D. $7x(2x - 3)$

Solution

$$14x^2 + 21x = 7x(2x + 3)$$

Final Answer

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

MCQ 60Factorize $12x^2 + 18x$.

- A. $6(2x + 3)$ B. $x(12x + 18)$
 C. $6x(2x - 3)$ D. $6x(2x + 3)$

Solution

$$12x^2 + 18x = 6x(2x + 3)$$

Final Answer

$$6x(2x + 3)$$

MCQ 61Factorize $15x^2 + 25x$.

- A. $5x(3x + 5)$ B. $5(3x + 5)$
 C. $x(15x + 25)$ D. $5x(3x - 5)$

Solution

$$15x^2 + 25x = 5x(3x + 5)$$

Final Answer

$$5x(3x + 5)$$

MCQ 62Factorize $16x^2 + 24x$.

- A. $8(2x + 3)$ B. $8x(2x + 3)$
 C. $x(16x + 24)$ D. $8x(2x - 3)$

Solution

$$16x^2 + 24x = 8x(2x + 3)$$

Final Answer

$$8x(2x + 3)$$

MCQ 63Factorize $18x^2 + 30x$.

- A. $6(3x + 5)$ B. $x(18x + 30)$
 C. $6x(3x + 5)$ D. $6x(3x - 5)$

Solution

$$18x^2 + 30x = 6x(3x + 5)$$

Final Answer

$$6x(3x + 5)$$

MCQ 64Factorize $20x^2 + 35x$.

- A. $5(4x + 7)$ B. $x(20x + 35)$
 C. $5x(4x - 7)$ D. $5x(4x + 7)$

Solution

$$20x^2 + 35x = 5x(4x + 7)$$

Final Answer

$$5x(4x + 7)$$

MCQ 65Factorize $9x^2 + 27x$.

- A. $9x(x + 3)$ B. $9(x + 3)$
 C. $x(9x + 27)$ D. $9x(x - 3)$

Solution

$$9x^2 + 27x = 9x(x + 3)$$

Final Answer

$$9x(x + 3)$$

MCQ 66Factorize $24x^2 + 36x$.

- A. $12(2x + 3)$ B. $12x(2x + 3)$
 C. $x(24x + 36)$ D. $12x(2x - 3)$

Solution

$$24x^2 + 36x = 12x(2x + 3)$$

Final Answer

$$12x(2x + 3)$$

MCQ 67Factorize $25x^2 + 40x$.

- A. $5(5x + 8)$ B. $x(25x + 40)$
 C. $5x(5x + 8)$ D. $5x(5x - 8)$

Solution

$$25x^2 + 40x = 5x(5x + 8)$$

Final Answer

$$5x(5x + 8)$$

MCQ 68Factorize $28x^2 + 42x$.

- A. $14(2x + 3)$ B. $x(28x + 42)$
 C. $14x(2x - 3)$ D. $14x(2x + 3)$

Solution

$$28x^2 + 42x = 14x(2x + 3)$$

Final Answer

$$14x(2x + 3)$$

MCQ 69Factorize $30x^2 + 45x$.

- A. $15x(2x + 3)$ B. $15(2x + 3)$
 C. $x(30x + 45)$ D. $15x(2x - 3)$

Solution

$$30x^2 + 45x = 15x(2x + 3)$$

Final Answer

$$15x(2x + 3)$$

MCQ 70Factorize $32x^2 + 48x$.

- A. $16(2x + 3)$ B. $16x(2x + 3)$
 C. $x(32x + 48)$ D. $16x(2x - 3)$

Solution

$$32x^2 + 48x = 16x(2x + 3)$$

Final Answer

$$16x(2x + 3)$$

Trinomial Factorization**MCQ 71**Factorize $x^2 - 5x + 6$.

- A. $(x + 2)(x + 3)$ B. $(x - 2)(x + 3)$
 C. $(x - 2)(x - 3)$ D. $(x + 2)(x - 3)$

Solution

$$x^2 - 5x + 6 = (x - 2)(x - 3)$$

Final Answer

$$(x - 2)(x - 3)$$

MCQ 72Factorize $x^2 - 6x + 5$.

- A. $(x + 1)(x + 5)$ B. $(x - 1)(x + 5)$
 C. $(x + 1)(x - 5)$ D. $(x - 1)(x - 5)$

Solution

$$x^2 - 6x + 5 = (x - 1)(x - 5)$$

Final Answer

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

MCQ 73Factorize $x^2 - 7x + 12$.

- A. $(x - 3)(x - 4)$ B. $(x + 3)(x + 4)$
 C. $(x - 3)(x + 4)$ D. $(x + 3)(x - 4)$

Solution

$$x^2 - 7x + 12 = (x - 3)(x - 4)$$

Final Answer

$$(x - 3)(x - 4)$$

MCQ 74Factorize $x^2 - 3x - 10$.

- A. $(x - 2)(x + 5)$ B. $(x + 2)(x - 5)$
 C. $(x + 2)(x + 5)$ D. $(x - 2)(x - 5)$

Solution

$$x^2 - 3x - 10 = (x + 2)(x - 5)$$

Final Answer

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

MCQ 75Factorize $x^2 + 7x + 12$.

- A. $(x - 3)(x - 4)$ B. $(x + 3)(x - 4)$
 C. $(x + 3)(x + 4)$ D. $(x - 3)(x + 4)$

Solution

$$x^2 + 7x + 12 = (x + 3)(x + 4)$$

Final Answer

$$(x + 3)(x + 4)$$

MCQ 76Factorize $x^2 - 9x + 14$.

- A. $(x + 2)(x + 7)$ B. $(x - 2)(x + 7)$
 C. $(x + 2)(x - 7)$ D. $(x - 2)(x - 7)$

Solution

$$x^2 - 9x + 14 = (x - 2)(x - 7)$$

Final Answer

$$(x - 2)(x - 7)$$

MCQ 77Factorize $x^2 - 9x + 20$.

- A. $(x - 4)(x - 5)$ B. $(x + 4)(x + 5)$
 C. $(x - 4)(x + 5)$ D. $(x + 4)(x - 5)$

Solution

$$x^2 - 9x + 20 = (x - 4)(x - 5)$$

Final Answer

$$(x - 4)(x - 5)$$

MCQ 78Factorize $x^2 - 5x - 6$.

- A. $(x - 1)(x + 6)$ B. $(x + 1)(x - 6)$
 C. $(x + 1)(x + 6)$ D. $(x - 1)(x - 6)$

Solution

$$x^2 - 5x - 6 = (x + 1)(x - 6)$$

Final Answer

$$(x + 1)(x - 6)$$

MCQ 79Factorize $x^2 - 1x + 24$.

- A. $(x + 3)(x + 8)$ B. $(x - 3)(x + 8)$
 C. $(x - 3)(x - 8)$ D. $(x + 3)(x - 8)$

Solution

$$x^2 - 1x + 24 = (x - 3)(x - 8)$$

Final Answer

$$(x - 3)(x - 8)$$

MCQ 80Factorize $x^2 - 3x - 28$.

- A. $(x - 4)(x + 7)$ B. $(x + 4)(x + 7)$
 C. $(x - 4)(x - 7)$ D. $(x + 4)(x - 7)$

Solution

$$x^2 - 3x - 28 = (x + 4)(x - 7)$$

Final Answer

$$(x + 4)(x - 7)$$

MCQ 81Factorize $x^2 - 1x + 30$.

- A. $(x - 5)(x - 6)$ B. $(x + 5)(x + 6)$
 C. $(x - 5)(x + 6)$ D. $(x + 5)(x - 6)$

Solution

$$x^2 - 1x + 30 = (x - 5)(x - 6)$$

Final Answer

$$(x - 5)(x - 6)$$

MCQ 82Factorize $x^2 - 7x - 18$.

- A. $(x - 2)(x + 9)$ B. $(x + 2)(x - 9)$
 C. $(x + 2)(x + 9)$ D. $(x - 2)(x - 9)$

Solution

$$x^2 - 7x - 18 = (x + 2)(x - 9)$$

Final Answer

$$(x + 2)(x - 9)$$

MCQ 83Factorize $x^2 - 1x + 10$.

- A. $(x + 1)(x + 10)$ B. $(x - 1)(x + 10)$
 C. $(x - 1)(x - 10)$ D. $(x + 1)(x - 10)$

Solution

$$x^2 - 1x + 10 = (x - 1)(x - 10)$$

Final Answer

$$(x - 1)(x - 10)$$

MCQ 84Factorize $x^2 - 3x - 40$.

- A. $(x - 5)(x + 8)$ B. $(x + 5)(x + 8)$
 C. $(x - 5)(x - 8)$ D. $(x + 5)(x - 8)$

Solution

$$x^2 - 3x - 40 = (x + 5)(x - 8)$$

Final Answer

$$(x + 5)(x - 8)$$

MCQ 85Factorize $x^2 - 13x + 42$.

- A. $(x - 6)(x - 7)$ B. $(x + 6)(x + 7)$
 C. $(x - 6)(x + 7)$ D. $(x + 6)(x - 7)$

Solution

$$x^2 - 13x + 42 = (x - 6)(x - 7)$$

Final Answer

$$(x - 6)(x - 7)$$

Fast Identity Evaluation**MCQ 86**Evaluate $12^2 - 8^2$ using an algebraic identity.

- A. 208 B. 80
 C. 16 D. 88

Solution

$$\begin{aligned} 12^2 - 8^2 &= (12 - 8)(12 + 8) \\ &= 4 \times 20 = 80 \end{aligned}$$

Final Answer

80

MCQ 87Evaluate $15^2 - 5^2$ using an algebraic identity.

- A. 250 B. 100
 C. 200 D. 220

Solution

$$\begin{aligned} 15^2 - 5^2 &= (15 - 5)(15 + 5) \\ &= 10 \times 20 = 200 \end{aligned}$$

Final Answer

200

MCQ 88Evaluate $21^2 - 9^2$ using an algebraic identity.

- A. 522 B. 144
 C. 384 D. 360

Solution

$$\begin{aligned} 21^2 - 9^2 &= (21 - 9)(21 + 9) \\ &= 12 \times 30 = 360 \end{aligned}$$

Final Answer

360

MCQ 89Evaluate $18^2 - 2^2$ using an algebraic identity.

- A. 320 B. 328
 C. 256 D. 352

Solution

$$\begin{aligned} 18^2 - 2^2 &= (18 - 2)(18 + 2) \\ &= 16 \times 20 = 320 \end{aligned}$$

Final Answer

320

MCQ 90Evaluate $25^2 - 15^2$ using an algebraic identity.

- A. 850 B. 400
 C. 100 D. 420

Solution

$$\begin{aligned} 25^2 - 15^2 &= (25 - 15)(25 + 15) \\ &= 10 \times 40 = 400 \end{aligned}$$

Final Answer

400

MCQ 91Evaluate $14^2 - 6^2$ using an algebraic identity.

- A. 232 B. 64
 C. 160 D. 176

Solution

$$\begin{aligned} 14^2 - 6^2 &= (14 - 6)(14 + 6) \\ &= 8 \times 20 = 160 \end{aligned}$$

Final Answer

160

MCQ 92Evaluate $30^2 - 10^2$ using an algebraic identity.

- A. 1000 B. 400
 C. 840 D. 800

Solution

$$\begin{aligned} 30^2 - 10^2 &= (30 - 10)(30 + 10) \\ &= 20 \times 40 = 800 \end{aligned}$$

Final Answer

800

MCQ 93Evaluate $17^2 - 3^2$ using an algebraic identity.

- A. 280 B. 298
C. 196 D. 308

Solution

$$17^2 - 3^2 = (17 - 3)(17 + 3)$$

$$= 14 \times 20 = 280$$

Final Answer

280

MCQ 94Evaluate $22^2 - 12^2$ using an algebraic identity.

- A. 628 B. 340
C. 100 D. 360

Solution

$$22^2 - 12^2 = (22 - 12)(22 + 12)$$

$$= 10 \times 34 = 340$$

Final Answer

340

MCQ 95Evaluate $19^2 - 11^2$ using an algebraic identity.

- A. 482 B. 64
C. 240 D. 256

Solution

$$19^2 - 11^2 = (19 - 11)(19 + 11)$$

$$= 8 \times 30 = 240$$

Final Answer

240

MCQ 96Evaluate $16^2 - 4^2$ using an algebraic identity.

- A. 272 B. 144
C. 264 D. 240

Solution

$$16^2 - 4^2 = (16 - 4)(16 + 4)$$

$$= 12 \times 20 = 240$$

Final Answer

240

MCQ 97Evaluate $28^2 - 8^2$ using an algebraic identity.

- A. 720 B. 848
C. 400 D. 760

Solution

$$28^2 - 8^2 = (28 - 8)(28 + 8)$$

$$= 20 \times 36 = 720$$

Final Answer

720

MCQ 98Evaluate $24^2 - 6^2$ using an algebraic identity.

- A. 612 B. 540
C. 324 D. 576

Solution

$$24^2 - 6^2 = (24 - 6)(24 + 6)$$

$$= 18 \times 30 = 540$$

Final Answer

540

MCQ 99Evaluate $13^2 - 7^2$ using an algebraic identity.

- A. 218 B. 36
C. 120 D. 132

Solution

$$13^2 - 7^2 = (13 - 7)(13 + 7)$$

$$= 6 \times 20 = 120$$

Final Answer

120

MCQ 100Evaluate $27^2 - 3^2$ using an algebraic identity.

- A. 738 B. 576
C. 768 D. 720

Solution

$$27^2 - 3^2 = (27 - 3)(27 + 3)$$

$$= 24 \times 30 = 720$$

Final Answer

720

RAPID REVISION GRID | ALGEBRA**Combine like terms**

$$ax + bx = (a + b)x$$

Square of sum

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

Square of difference

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

Difference of squares

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

Two binomials

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

Factorization check Expand the proposed factors mentally; the middle term and constant must match.

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