NCERT Solutions for Class 8 Maths Chapter 12: The purpose of the NCERT Solutions for Class 8 Maths Chapter 12 is to assist students in grasping the material and gaining thorough understanding of the different kinds of questions that are asked in the CBSE Class 8 Mathematics Examinations.

There are suitable answers for every question, which would help update the CBSE Class 8 Mathematics syllabus. According to the CBSE syllabus, extremely qualified subject matter specialists created the NCERT Solutions for Class 8 Maths Chapter 12. Students can simplify their final-minute review by using the Class 8 Maths NCERT Solutions. Students who wish to study offline can download the PDF.

NCERT Solutions for Class 8 Maths Chapter 12 Overview

The purpose of NCERT Solutions is to aid students in learning the subject matter and developing a thorough comprehension of the various question types seen in the CBSE Factorization Class 8 Mathematics Examinations. Every question has an appropriate response, which will be useful for revising the CBSE Class 8 Mathematics syllabus.

The Maths Class 8 solutions are created by highly certified subject matter specialists, as per the CBSE guideline. Students can use the Class 8 Maths NCERT Solutions to make their last-minute review easier. Students can download the PDF if they would like to study offline.

NCERT Solutions for Class 8 Maths Chapter 12

Here we have provided NCERT Solutions for Class 8 Maths Chapter 12 for the ease of students so that they can prepare better for their upcoming exams -

1. Find the common factors of the given terms.

(i) $12x$, 36

(ii) $2y$, $22xy$

(iii) $14pq$, $28p^2q^2$

(iv) $2x$, $3x^2$, 4

(v) $6abc$, $24ab^2$, $12a^2b$

(vi) $16x^3$, $-4x^2$, $32x$

(vii) $10pq$, $20qr$, $30rp$

(viii) $3x^2y^3$, $10x^3y^2$, $6x^2y^2z$

Solution:

(i) Factors of 12x and 36

12x = 2×2×3×x

36 = 2×2×3×3

Common factors of 12x and 36 are 2, 2, 3

and , 2×2×3 = 12

(ii) Factors of 2y and 22xy

2y = 2×y

22xy = 2×11×x×y

Common factors of 2y and 22xy are 2, y

and ,2×y = 2y

(iii) Factors of 14pq and $28p^2q^2$

14pq = 2x7xpxq

$28p^2q^2$ = 2x2x7xpxpxqxq

Common factors of 14 pq and 28 p^2q^2 are 2, 7 , p , q

and, 2x7xpxq = 14pq

(iv) Factors of 2x, $3x^2$and 4

2x = 2×x

$3x^2$= 3×x×x

4 = 2×2

Common factors of 2x, $3x^2$ and 4 is 1.

(v) Factors of 6abc, $24ab^2$ and $12a^2b$

6abc = 2×3×a×b×c

$24ab^2 = 2×2×2×3×a×b×b$

$12\ a^2 b = 2×2×3×a×a×b$

Common factors of 6 abc, $24ab^2$ and $12a^2b$ are 2, 3, a, b

and, $2×3×a×b = 6ab$

(vi) Factors of $16x^3$, $-4x^2$and 32x

$16\ x^3 = 2×2×2×2×x×x×x$

$– 4x^2 = -1×2×2×x×x$

$32x = 2×2×2×2×2×x$

Common factors of $16\ x^3$, $– 4x^2$ and 32x are 2,2, x

and, $2×2×x = 4x$

(vii) Factors of 10 pq, 20qr and 30rp

$10\ pq = 2×5×p×q$

$20qr = 2×2×5×q×r$

$30rp= 2×3×5×r×p$

Common factors of 10 pq, 20qr and 30rp are 2, 5

and, $2×5 = 10$

(viii) Factors of $3x^2y^3$, $10x^3y^2$ and $6x^2y^2z$

$3x^2y^3 = 3×x×x×y×y×y$

$10x^3 y^2 = 2×5×x×x×x×y×y$

$6x^2y^2z = 3×2×x×x×y×y×z$

Common factors of $3x^2y^3$, $10x^3y^2$ and $6x^2y^2z$ are x^2, y^2

and, $x^2×y^2 = x^2y^2$

2.Factorise the following expressions.

(i) 7x–42

(ii) $6p – 12q$

(iii) $7a^2 + 14a$

(iv) $-16z + 20z^3$

(v) $20l^2m + 30alm$

(vi) $5x^2y - 15xy^2$

(vii) $10a^2 - 15b^2 + 20c^2$

(viii) $-4a^2 + 4ab – 4ca$

(ix) $x^2yz + xy^2z + xyz^2$

(x) $ax^2y + bxy^2 + cxyz$

Solution:

$(i)\quad 7x = 7 \times x$

$42 = 2 \times 3 \times 7$

The common factor is 7

$\therefore\ 7x - 42 = (7 \times x) - (2 \times 3 \times 7) = 7(x - 6)$

$(ii)\quad 6p = 2 \times 3 \times p$

$12q = 2 \times 2 \times 3 \times q$

The common factors are 2 and 3

$\therefore\ 6p - 12q = (2 \times 3 \times p) - (2 \times 2 \times 3 \times q)$

$= 2 \times 3\ [p - (2 \times q)]$

$= 6(p - 2q)$

$(iii)\ 7a^2 = 7 \times a \times a$

$14a = 2 \times 7 \times a$

The common factors are 7 and a

$\therefore\ 7a^2 + 14a = (7 \times a \times a) + (2 \times 7 \times a)$

$= 7 \times a\ [a + 2] = 7a\ (a + 2)$

$(iv)\ 16z = 2 \times 2 \times 2 \times 2 \times z$

$20z^3 = 2 \times 2 \times 5 \times z \times z \times z$

The common factors are 2, 2, and z.

$\therefore\ -16z + 20z^3 = -(2 \times 2 \times 2 \times 2 \times z) + (2 \times 2 \times 5 \times z \times z \times z)$

$= (2 \times 2 \times z)\ [-(2 \times 2) + (5 \times z \times z)]$

$= 4z(-4 + 5z^2)$

$(v)\ 20l^2m = 2 \times 2 \times 5 \times l \times l \times m$

$30alm = 2 \times 3 \times 5 \times a \times l \times m$

The common factors are 2, 5, l and m

$\therefore\ 20l^2m + 30alm = (2 \times 2 \times 5 \times l \times l \times m) + (2 \times 3 \times 5 \times a \times l \times m)$

$= (2 \times 5 \times l \times m)\ [(2 \times l) + (3 \times a)]$

$= 10lm\ (2l + 3a)$

$(vi)\ 5x^2y = 5 \times x \times x \times y$

$15xy^2 = 3 \times 5 \times x \times y \times y$

The common factors are 5, x, and y

$\therefore\ 5x^2y - 15xy^2 = (5 \times x \times x \times y) - (3 \times 5 \times x \times y \times y)$

$= 5 \times x \times y[x - (3 \times y)]$

$= 5xy\ (x - 3y)$

(vii) $10a^2-15b^2+20c^2$

$10a^2 = 2×5×a×a$

$– 15b^2 = -1×3×5×b×b$

$20c^2 = 2×2×5×c×c$

Common factor of $10 a^2$, $15b^2$ and $20c^2$ is 5

$10a^2-15b^2+20c^2 = 5(2a^2-3b^2+4c^2)$

(viii) $– 4a^2+4ab-4ca$

$– 4a^2 = -1×2×2×a×a$

$4ab = 2×2×a×b$

$– 4ca = -1×2×2×c×a$

Common factor of $– 4a^2$, $4ab$, $– 4ca$ are 2, 2, a i.e. 4a

So,

$– 4a^2+4 ab-4 ca = 4a(-a+b-c)$

(ix) $x^2yz+xy^2z+xyz^2$

$x^2yz = x×x×y×z$

$xy^2z = x×y×y×z$

$xyz^2 = x×y×z×z$

Common factor of x^2yz , xy^2z and xyz^2 are x, y, z i.e. xyz

Now, $x^2yz+xy^2z+xyz^2 = xyz(x+y+z)$

(x) ax^2y+bxy^2+cxyz

$ax^2y = a×x×x×y$

$bxy^2 = b×x×y×y$

$cxyz = c×x×y×z$

Common factors of $a x^2y$,bxy^2 and cxyz are xy

Now, $ax^2y+bxy^2+cxyz = xy(ax+by+cz)$

3. Factorise.

(i) $x^2+xy+8x+8y$

(ii) $15xy–6x+5y–2$

(iii) $ax+bx–ay–by$

(iv) $15pq+15+9q+25p$

(v) $z–7+7xy–xyz$

Solution:

$(i)\ x^2 + xy + 8x + 8y = x \times x + x \times y + 8 \times x + 8 \times y$

$= x(x + y) + 8(x + y)$

$= (x + y)\ (x + 8)$

$(ii)\ 15xy - 6x + 5y - 2 = 3 \times 5 \times x \times y - 3 \times 2 \times x + 5xy - 2$

$= 3x(5y - 2) + 1\ (5y - 2)$

$= (5y - 2)\ (3x + 1)$

$(iii)\ ax + bx - ay - by = a \times x + b \times x - a \times y - b \times y$

$= x(a + b) - y(a + b)$

$= (a + b)\ (x - y)$

$(iv)\ 15pq + 15 + 9q + 25p = 15pq + 9q + 25p + 15$

$= 3 \times 5 \times p \times q + 3 \times 3 \times q + 5 \times 5 \times p + 3 \times 5$

$= 3q\ (5p + 3) + 5\ (5p + 3)$

$= (5p + 3)\ (3q + 5)$

$(v)\ z - 7 + 7xy - xyz = z - x \times y \times z - 7 + 7 \times x \times y$

$= z\ (1 - xy) - 7\ (1 - xy)$

$= (1 - xy)\ (z - 7)$

NCERT Solutions for Class 8 Maths Chapter 12 Ex 12.2

1. Factorise the following expressions.

(i) $a^2+8a+16$

(ii) $p^2–10p+25$

(iii) $25m^2+30m+9$

(iv) $49y^2+84yz+36z^2$

(v) $4x^2–8x+4$

(vi) $121b^2–88bc+16c^2$

(vii) $(l+m)^2–4lm$ (Hint: Expand $(l+m)^2$ first)

(viii) $a^4+2a^2b^2+b^4$

Solution:

(i) $a^2+8a+16$

$= a^2+2×4×a+4^2$

$= (a+4)^2$

Using the identity $(x+y)^2 = x^2+2xy+y^2$

(ii) $p^2–10p+25$

$= p^2-2×5×p+5^2$

$= (p-5)^2$

Using the identity $(x-y)^2 = x^2-2xy+y^2$

(iii) $25m^2+30m+9$

$= (5m)^2+2×5m×3+3^2$

$= (5m+3)^2$

Using the identity $(x+y)^2 = x^2+2xy+y^2$

(iv) $49y^2+84yz+36z^2$

$=(7y)^2+2×7y×6z+(6z)^2$

$= (7y+6z)^2$

Using the identity $(x+y)^2 = x^2+2xy+y^2$

(v) $4x^2–8x+4$

$= (2x)^2-2\times4x+2^2$

$= (2x-2)^2$

Using the identity $(x-y)^2 = x^2-2xy+y^2$

(vi) $121b^2-88bc+16c^2$

$= (11b)^2-2\times11b\times4c+(4c)^2$

$= (11b-4c)^2$

Using the identity $(x-y)^2 = x^2-2xy+y^2$

(vii) $(l+m)^2-4lm$ (Hint: Expand $(l+m)^2$ first)

Expand $(l+m)^2$ using the identity $(x+y)^2 = x^2+2xy+y^2$

$(l+m)^2-4lm = l^2+m^2+2lm-4lm$

$= l^2+m^2-2lm$

$= (l-m)^2$

Using the identity $(x-y)^2 = x^2-2xy+y^2$

(viii) $a^4+2a^2b^2+b^4$

$= (a^2)^2+2\times a^{2\times}b^2+(b^2)^2$

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

Using the identity $(x+y)^2 = x^2+2xy+y^2$

2. Factorise.

(i) $4p^2–9q^2$

(ii) $63a^2–112b^2$

(iii) $49x^2–36$

(iv) $16x^5–144x^3$ differ

(v) $(l+m)^2-(l-m)^2$

(vi) $9x^2y^2–16$

(vii) $(x^2–2xy+y^2)–z^2$

(viii) $25a^2–4b^2+28bc–49c^2$

Solution:

(i) $4p^2–9q^2$

$= (2p)^2-(3q)^2$

$= (2p-3q)(2p+3q)$

Using the identity $x^2-y^2 = (x+y)(x-y)$

(ii) $63a^2–112b^2$

$= 7(9a^2 –16b^2)$

$= 7((3a)^2–(4b)^2)$

$= 7(3a+4b)(3a-4b)$

Using the identity $x^2-y^2 = (x+y)(x-y)$

(iii) $49x^2–36$

$= (7x)^2 -6^2$

$= (7x+6)(7x–6)$

Using the identity $x^2-y^2 = (x+y)(x-y)$

(iv) $16x^5–144x^3$

$= 16x^3(x^2–9)$

$= 16x^3(x^2–9)$

$= 16x^3(x–3)(x+3)$

Using the identity $x^2-y^2 = (x+y)(x-y)$

(v) $(l+m)^2-(l-m)^2$

$= \{(l+m)-(l–m)\}\{(l +m)+(l–m)\}$

Using the identity $x^2-y^2 = (x+y)(x-y)$

$= (l+m–l+m)(l+m+l–m)$

$= (2m)(2l)$

$= 4\ ml$

(vi) $9x^2y^2–16$

$= (3xy)^2-4^2$

$= (3xy–4)(3xy+4)$

Using the identity $x^2-y^2 = (x+y)(x-y)$

(vii) $(x^2–2xy+y^2)–z^2$

$= (x–y)^2–z^2$

Using the identity $(x-y)^2 = x^2-2xy+y^2$

$= \{(x–y)–z\}\{(x–y)+z\}$

$= (x–y–z)(x–y+z)$

Using the identity $x^2-y^2 = (x+y)(x-y)$

(viii) $25a^2–4b^2+28bc–49c^2$

$= 25a^2–(4b^2-28bc+49c^2\ )$

$= (5a)^2-\{(2b)^2-2(2b)(7c)+(7c)^2\}$

$= (5a)^2-(2b-7c)^2$

Using the identity $x^2-y^2 = (x+y)(x-y)$, we have

$= (5a+2b-7c)(5a-2b+7c)$

3. Factorise the expressions.

(i) ax^2+bx

(ii) $7p^2+21q^2$

(iii) $2x^3+2xy^2+2xz^2$

(iv) $am^2+bm^2+bn^2+an^2$

(v) (lm+l)+m+1

(vi) y(y+z)+9(y+z)

(vii) $5y^2$–20y–8z+2yz

(viii) 10ab+4a+5b+2

(ix)6xy–4y+6–9x

Solution:

(i) $ax^2+bx = x(ax+b)$

(ii) $7p^2+21q^2 = 7(p^2+3q^2)$

(iii) $2x^3+2xy^2+2xz^2 = 2x(x^2+y^2+z^2)$

(iv) $am^2+bm^2+bn^2+an^2 = m^2(a+b)+n^2(a+b) = (a+b)(m^2+n^2)$

(v) (lm+l)+m+1 = lm+m+l+1 = m(l+1)+(l+1) = (m+1)(l+1)

(vi) y(y+z)+9(y+z) = (y+9)(y+z)

(vii) $5y^2–20y–8z+2yz = 5y(y–4)+2z(y–4) = (y–4)(5y+2z)$

(viii) 10ab+4a+5b+2 = 5b(2a+1)+2(2a+1) = (2a+1)(5b+2)

(ix) 6xy–4y+6–9x = 6xy–9x–4y+6 = 3x(2y–3)–2(2y–3) = (2y–3)(3x–2)

4.Factorise.

(i) $a^4–b^4$

(ii) p^4–81

(iii) $x^4–(y+z)^4$

(iv) $x^4–(x–z)^4$

(v) $a^4–2a^2b^2+b^4$

Solution:

(i) $a^4–b^4$

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

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

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

(ii) p^4-81

$= (p^2)^2-(9)^2$

$= (p^2-9)(p^2+9)$

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

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

(iii) $x^4-(y+z)^4 = (x^2)^2-[(y+z)^2]^2$

$= \{x^2-(y+z)^2\}\{ x^2+(y+z)^2\}$

$= \{(x -(y+z)(x+(y+z)\}\{x^2+(y+z)^2\}$

$= (x-y-z)(x+y+z)\ \{x^2+(y+z)^2\}$

(iv) $x^4-(x-z)^4 = (x^2)^2-\{(x-z)^2\}^2$

$= \{x^2-(x-z)^2\}\{x^2+(x-z)^2\}$

$= \{ x-(x-z)\}\{x+(x-z)\}\ \{x^2+(x-z)^2\}$

$= z(2x-z)(x^2+x^2-2xz+z^2)$

$= z(2x-z)(2x^2-2xz+z^2)$

(v) $a^4-2a^2b^2+b^4 = (a^2)^2-2a^2b^2+(b^2)^2$

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

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

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

5. Factorise the following expressions.

(i) p^2+6p+8

(ii) $q^2-10q+21$

(iii) $p^2+6p-16$

Solution:

(i) p^2+6p+8

We observed that $8 = 4\times2$ and $4+2 = 6$

p^2+6p+8 can be written as $p^2+2p+4p+8$

Taking Common terms, we get

$p^2+6p+8 = p^2+2p+4p+8 = p(p+2)+4(p+2)$

Again, $p+2$ is common in both the terms.

$= (p+2)(p+4)$

This implies that $p^2+6p+8 = (p+2)(p+4)$

(ii) $q^2–10q+21$

We observed that $21 = -7\times-3$ and $-7+(-3) = -10$

$q^2–10q+21 = q^2–3q-7q+21$

$= q(q–3)–7(q–3)$

$= (q–7)(q–3)$

This implies that $q^2–10q+21 = (q–7)(q–3)$

(iii) $p^2+6p–16$

We observed that $-16 = -2\times8$ and $8+(-2) = 6$

$p^2+6p–16 = p^2–2p+8p–16$

$= p(p–2)+8(p–2)$

$= (p+8)(p–2)$

So, $p^2+6p–16 = (p+8)(p–2)$

NCERT Solutions for Class 8 Maths Chapter 12 Ex 12.3

1. Carry out the following divisions.

(i) $28x^4 \div 56x$

(ii) –36y³ ÷ 9y²

(iii) 66pq²r³ ÷ 11qr²

(iv) 34x³y³z³ ÷ 51xy²z³

(v) 12a⁸b⁸ ÷ (– 6a⁶b⁴)

Solution:

(i) $28x^4 = 2\times2\times7\times x\times x\times x\times x$

$56x = 2\times2\times2\times7\times x$

$$28x^4 \div 56x = \frac{2\times2\times7\times x\times x\times x\times x}{2\times2\times2\times7\times x} = \frac{x^3}{2} = \frac{1}{2}x^3$$

$$\text{(ii) } -36y^3 \div 9y^2 = \frac{-2\times2\times3\times3\times y\times y\times y}{3\times3\times y\times y} = -4y$$

$$\text{(iii) } 66pq^2r^3 \div 11qr^2 = \frac{2\times3\times11\times p\times q\times q\times r\times r\times r}{11\times q\times r\times r} = 6pqr$$

$$\text{(iv) } 34x^3y^3z^3 \div 51xy^2z^3 = \frac{2\times17\times x\times x\times x\times y\times y\times y\times z\times z\times z}{3\times17\times x\times y\times y\times z\times z\times z} = \frac{2}{3}x^2y$$

$$\text{(v) } 12a^8b^8 \div (-6a^6b^4) = \frac{2\times2\times3\times a^8\times b^8}{-2\times3\times a^6\times b^4} = -2a^2b^4$$

2. Divide the given polynomial by the given monomial.

(i) $(5x^2-6x) \div 3x$

(ii) $(3y^8-4y^6+5y^4) \div y^4$

(iii) $8(x^3y^2z^2+x^2y^3z^2+x^2y^2z^3) \div 4x^2y^2z^2$

(iv)$(x^3+2x^2+3x)\div 2x$

(v) $(p^3q^6-p^6q^3)\div p^3q^3$

Solution:

$$(i)\ 5x^2-6x = x(5x-6)$$

$$(5x^2-6x)\div 3x = \frac{x(5x-6)}{3x} = \frac{1}{3}(5x-6)$$

$$(ii)\ 3y^8-4y^6+5y^4 = y^4(3y^4-4y^2+5)$$

$$(3y^8-4y^6+5y^4)\div y^4 = \frac{y^4(3y^4-4y^2+5)}{y^4} = 3y^4-4y^2+5$$

$$(iii)\ 8(x^3y^2z^2+x^2y^3z^2+x^2y^2z^3) = 8x^2y^2z^2(x+y+z)$$

$$8(x^3y^2z^2+x^2y^3z^2+x^2y^2z^3)\div 4x^2y^2z^2 = \frac{8x^2y^2z^2(x+y+z)}{4x^2y^2z^2} = 2(x+y+z)$$

$$(iv)\ x^3+2x^2+3x = x(x^2+2x+3)$$

$$(x^3+2x^2+3x)\div 2x = \frac{x(x^3+2x^2+3)}{2x} = \frac{1}{2}(x^2+2x+3)$$

$$(v)\ p^3q^6-p^6q^3 = p^3q^3(q^3-p^3)$$

$$(p^3q^6-p^6q^3)\div p^3q^3 = \frac{p^3q^3(q^3-p^3)}{p^3q^3} = q^3-p^3$$

3. Work out the following divisions.

(i) $(10x-25)\div 5$

(ii) $(10x-25)\div(2x-5)$

(iii) $10y(6y+21)\div 5(2y+7)$

(iv) $9x^2y^2(3z-24)\div 27xy(z-8)$

(v) $96abc(3a-12)(5b-30)\div 144(a-4)(b-6)$

Solution:

(i) $(10x-25)\div 5 = 5(2x-5)/5 = 2x-5$

(ii) $(10x-25)\div(2x-5) = 5(2x-5)/(2x-5) = 5$

(iii) $10y(6y+21)\div 5(2y+7) = 10y\times 3(2y+7)/5(2y+7) = 6y$

(iv) $9x^2y^2(3z–24) \div 27xy(z–8) = 9x^2y^2 \times 3(z-8)/27xy(z-8) = xy$

(v) $96abc(3a – 12)(5b – 30) \div 144(a – 4)(b – 6) = \dfrac{96\,abc \times 3(a-4) \times 5(b-6)}{144(a-4)(b-6)} = 10abc$

4. Divide as directed.

(i) $5(2x+1)(3x+5) \div (2x+1)$

(ii) $26xy(x+5)(y–4) \div 13x(y–4)$

(iii) $52pqr(p+q)(q+r)(r+p) \div 104pq(q+r)(r+p)$

(iv) $20(y+4)(y^2+5y+3) \div 5(y+4)$

(v) $x(x+1)(x+2)(x+3) \div x(x+1)$

Solution:

$$(i)\ 5(2x+1)(3x+5) \div (2x+1) = \frac{5(2x+1)(3x+5)}{(2x+1)}$$

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

$$(ii)\ 26xy(x+5)(y-4) \div 13x(y-4) = \frac{2 \times 13 \times xy(x+5)(y-4}{13x(y-4)}$$

$$= 2y(x+5)$$

$$(iii)\ 52pqr(p+q)(q+r)(r+p) \div 104pq(q+r)(r+p)$$

$$= \frac{2 \times 2 \times 13 \times p \times q \times r \times (p+q) \times (q+r) \times (r+p)}{2 \times 2 \times 2 \times 13 \times p \times q \times (q+r) \times (r+p)}$$

$$= \frac{1}{2} r(p+q)$$

$$(iv)\ 20(y+4)(y^2+5y+3) = 2 \times 2 \times 5 \times (y+4)(y^2+5y+3)$$

$$20(y+4)(y^2+5y+3) \div 5(y+4) = \frac{2 \times 2 \times 5 \times (y+4) \times (y^2+5y+3)}{5 \times (y+4)}$$

$$= 4(y^2+5y+3)$$

$$(v)\ x(x+1)(x+2)(x+3) \div x(x+1) = \frac{x(x+1)(x+2)(x+3)}{x(x+1)}$$

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

5. Factorise the expressions and divide them as directed.

(i) $(y^2+7y+10) \div (y+5)$

(ii) $(m^2–14m–32) \div (m+2)$

(iii) $(5p^2–25p+20)÷(p–1)$

(iv) $4yz(z^2+6z–16)÷2y(z+8)$

(v) $5pq(p^2–q^2)÷2p(p+q)$

(vi) $12xy(9x^2–16y^2)÷4xy(3x+4y)$

(vii) $39y^3(50y^2–98) ÷ 26y^2(5y+7)$

Solution:

(i) $(y^2+7y+10)÷(y+5)$

First, solve the equation $(y^2+7y+10)$

$(y^2+7y+10) = y^2+2y+5y+10 = y(y+2)+5(y+2) = (y+2)(y+5)$

Now, $(y^2+7y+10)÷(y+5) = (y+2)(y+5)/(y+5) = y+2$

(ii) $(m^2–14m–32)÷ (m+2)$

Solve for $m^2–14m–32$, we have

$m^2–14m–32 = m^2+2m-16m–32 = m(m+2)–16(m+2) = (m–16)(m+2)$

Now, $(m^2–14m–32)÷(m+2) = (m–16)(m+2)/(m+2) = m-16$

(iii) $(5p^2–25p+20)÷(p–1)$

Step 1: Take 5 common from the equation, $5p^2–25p+20$, we get

$5p^2–25p+20 = 5(p^2–5p+4)$

Step 2: Factorise $p^2–5p+4$

$p^2–5p+4 = p^2–p-4p+4 = (p–1)(p–4)$

Step 3: Solve original equation

$(5p^2–25p+20)÷(p–1) = 5(p–1)(p–4)/(p-1) = 5(p–4)$

(iv) $4yz(z^2 + 6z–16)÷ 2y(z+8)$

Factorising $z^2+6z–16$,

$z^2+6z–16 = z^2-2z+8z–16 = (z–2)(z+8)$

Now, $4yz(z^2+6z–16) \div 2y(z+8) = 4yz(z–2)(z+8)/2y(z+8) = 2z(z-2)$

(v) $5pq(p^2–q^2) \div 2p(p+q)$

$p^2–q^2$ can be written as $(p–q)(p+q)$ using the identity.

$5pq(p^2–q^2) \div 2p(p+q) = 5pq(p–q)(p+q)/2p(p+q) = 5q(p–q)/2$

(vi) $12xy(9x^2–16y^2) \div 4xy(3x+4y)$

Factorising $9x^2–16y^2$, we have

$9x^2–16y^2 = (3x)^2–(4y)^2 = (3x+4y)(3x-4y)$ using the identity $p^2–q^2 = (p–q)(p+q)$

Now, $12xy(9x^2–16y^2) \div 4xy(3x+4y) = 12xy(3x+4y)(3x-4y) /4xy(3x+4y) = 3(3x-4y)$

(vii) $39y^3(50y^2–98) \div 26y^2(5y+7)$
st solve for $50y^2–98$, we have

$50y^2–98 = 2(25y^2–49) = 2((5y)^2–7^2) = 2(5y–7)(5y+7)$

Now, $39y^3(50y^2–98) \div 26y^2(5y+7) =$

$$\frac{3 \times 13 \times y^3 \times 2(5y-7)(5y+7)}{2 \times 13 \times y^2 (5y+7)} = 3y(5y – 7)$$

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