



NCERT solutions for class-8 maths chapter-14 factorisation Ex-14.4

Find and correct the errors in the following mathematical statements:

Q1. $4(x-5) = 4x-5$

Ans. L.H.S. = $4(x-5) = 4x-20 \neq$ R.H.S.

Hence the correct mathematical statements is $4(x-5) = 4x-20$.

Q2. $x(3x+2) = 3x^2 + 2$

Ans. L.H.S. = $x(3x+2) = 3x^2 + 2x \neq$ R.H.S.

Hence the correct mathematical statements is $x(3x+2) = 3x^2 + 2x$.

Q3. $2x+3y = 5xy$

Ans. L.H.S. = $2x+3y \neq$ R.H.S.

Hence the correct mathematical statements is $2x+3y = 2x+3y$.

Q4. $x+2x+3x = 5x$

Ans. L.H.S. = $x+2x+3x = 6x \neq$ R.H.S.

Hence the correct mathematical statements is $x+2x+3x = 6x$.

Q5. $5y + 2y + y - 7y = 0$

Ans. L.H.S. =

$5y + 2y + y - 7y = 8y - 7y = y \neq \text{R.H.S.}$

Hence the correct mathematical statements
is $5y + 2y + y - 7y = y$.

Q6. $3x + 2x = 5x^2$

Ans. L.H.S. = $3x + 2x = 5x \neq \text{R.H.S.}$

Hence the correct mathematical statements
is $3x + 2x = 5x$

Q7. $(2x)^2 + 4(2x) + 7 = 2x^2 + 8x + 7$

Ans. L.H.S. =

$(2x)^2 + 4(2x) + 7 = 4x^2 + 8x + 7 \neq \text{R.H.S.}$

Hence the correct mathematical statements
is $(2x)^2 + 4(2x) + 7 = 4x^2 + 8x + 7$.

Q8. $(2x)^2 + 5x = 4x + 5x = 9x$

Ans. L.H.S. = $(2x)^2 + 5x = 4x^2 + 5x \neq \text{R.H.S.}$

Hence the correct mathematical statements
is $(2x)^2 + 5x = 4x^2 + 5x$.

Q9. $(3x+2)^2 = 3x^2 + 6x + 4$

Ans.

$$\text{L.H.S.} = (3x+2)^2 = (3x)^2 + 2 \times 3x \times 2 + (2)^2.$$

$$= 9x^2 + 12x + 4 \neq \text{R.H.S.}$$

Hence the correct mathematical statements is $(3x+2)^2 = 9x^2 + 12x + 4$.

Q10. Substituting $x = -3$ in:

(a) $x^2 + 5x + 4$ gives

$$(-3)^2 + 5(-3) + 4 = 9 + 2 + 4 = 15$$

(b) $x^2 - 5x + 4$ gives

$$(-3)^2 - 5(-3) + 4 = 9 - 15 + 4 = -2$$

(c) $x^2 + 5x$ gives $(-3)^2 + 5(-3) = -9 - 15 = -24$

Ans. (a) L.H.S. = $x^2 + 5x + 4$

Putting $x = -3$ in given expression,

$$= (-3)^2 + 5(-3) + 4 = 9 - 15 + 4 = -2 \neq \text{R.H.S.}$$

Hence $x^2 + 5x + 4$ gives

$$(-3)^2 + 5(-3) + 4 = 9 - 15 + 4 = -2.$$

(b) L.H.S. = $x^2 - 5x + 4$

Putting $x = -3$ in given expression,

$$= (-3)^2 - 5(-3) + 4 = 9 + 15 + 4 = 28 \neq \text{R.H.S.}$$

Hence $x^2 - 5x + 4$ gives

$$(-3)^2 - 5(-3) + 4 = 9 + 15 + 4 = 28.$$

(c) L.H.S. = $x^2 + 5x$

Putting $x = -3$ in given expression,

$$= (-3)^2 + 5(-3) = 9 - 15 = -6 \neq \text{R.H.S.}$$

Hence $x^2 + 5x$ gives

$$(-3)^2 + 5(-3) = 9 - 15 = -6.$$

Q11. $(y-3)^2 = y^2 - 9$

Ans. L.H.S. = $(y-3)^2 = y^2 - 2 \times y \times 3 + (3)^2$

$$\left[\because (a-b)^2 = a^2 - 2ab + b^2 \right]$$

$$= y^2 - 6y + 9 \neq \text{R.H.S.}$$

Hence the correct statements is

$$(y-3)^2 = y^2 - 6y + 9.$$

Q12. $(z+5)^2 = z^2 + 25$

Ans. L.H.S. = $(z+5)^2 = z^2 + 2 \times z \times 5 + (5)^2$

Hence the correct statement is

$$(z+5)^2 = z^2 + 10z + 25.$$

Q13. $(2a+3b)(a-b) = 2a^2 - 3b^2$

Ans. L.H.S. =

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

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

$$= 2a^2 + ab - 3b^2 \neq \text{R.H.S.}$$

Hence the correct statement is

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

Q14. $(a+b)(a+2) = a^2 + 8$

Ans. L.H.S. =

$$(a+4)(a+2) = a(a+2) + 4(a+2)$$

$$= a^2 + 2a + 4a + 8 = a^2 + 6a + 8 \neq \text{R.H.S.}$$

Hence the correct statement is

$$(a+4)(a+2) = a^2 + 6a + 8.$$

Q15. $(a-4)(a-2) = a^2 - 8$

Ans. L.H.S. =

$$(a-4)(a-2) = a(a-2) - 4(a-2)$$

$$= a^2 - 2a - 4a + 8 = a^2 - 6a + 8 \neq \text{R.H.S.}$$

Hence the correct statement is

$$(a-4)(a-2) = a^2 - 6a + 8.$$

Q16. $\frac{3x^2}{3x^2} = 0$

Ans. L.H.S. = $\frac{3x^2}{3x^2} = \frac{1}{1} = 1 \neq \text{R.H.S.}$

Hence the correct statement is $\frac{3x^2}{3x^2} = 1$.

Q17. $\frac{3x^2+1}{3x^2} = 1+1=2$

Ans. L.H.S. = $\frac{3x^2+1}{3x^2} = \frac{3x^2}{3x^2} + \frac{1}{3x^2}$

$$= 1 + \frac{1}{3x^2} \neq \text{R.H.S.}$$

Hence the correct statement is

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

$$\text{Q18. } \frac{3x}{3x+2} = \frac{1}{2}$$

$$\text{Ans. L.H.S.} = \frac{3x}{3x+2} \neq \text{R.H.S.}$$

Hence the correct statement is

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

$$\text{Q19. } \frac{3}{4x+3} = \frac{1}{4x}$$

$$\text{Ans. L.H.S.} = \frac{3}{4x+3} \neq \text{R.H.S.}$$

Hence the correct statement is

$$\frac{3}{4x+3} = \frac{3}{4x+3}.$$

$$\text{Q20. } \frac{4x+5}{4x} = 5$$

$$\text{Ans. L.H.S.} = \frac{4x+5}{4x} = \frac{4x}{4x} + \frac{5}{4x} = 1 + \frac{5}{4x} \neq \text{R.H.S.}$$

Hence the correct statement is

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

$$\text{Q21. } \frac{7x+5}{5} = 7x$$

$$\text{Ans. L.H.S.} = \frac{7x+5}{5} = \frac{7x}{5} + \frac{5}{5} = \frac{7x}{5} + 1 \neq \text{R.H.S.}$$

Hence the correct statement is

$$\frac{7x+5}{5} = \frac{7x}{5} + 1.$$

***** END *****