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

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

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

Ans. L.H.S. = $3x+2x=5x \neq$ 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. =
$(2x)^2+4(2x)+7=4x^2+8x+7 \neq$ 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. = $(2x)^2+5x=4x^2+5x \neq$ R.H.S.

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

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

Ans.

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

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

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,

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

$= (-3)^2 - 5(-3) + 4 = 9 + 15 + 4 = 28 \neq$ 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,

$= (-3)^2 + 5(-3) = 9 - 15 = -6 \neq$ 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. $= (y-3)^2 = y^2 - 2 \times y \times 3 + (3)^2$
$\left[\because (a-b)^2 = a^2 - 2ab + b^2\right]$

$= y^2 - 6y + 9 \neq$ 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. =
$(2a+3b)(a-b) = 2a(a-b) + 3b(a-b)$

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

$= 2a^2 + ab - 3b^2 \neq$ 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. =
$(a+4)(a+2) = a(a+2) + 4(a+2)$

$= a^2 + 2a + 4a + 8 = a^2 + 6a + 8 \neq$ 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. =

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

$=a^2-2a-4a+8=a^2-6a+8\neq$ 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. $=\frac{3x^2}{3x^2}=\frac{1}{1}=1\neq$ 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. $=\frac{3x^2+1}{3x^2}=\frac{3x^2}{3x^2}+\frac{1}{3x^2}$

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

Hence the correct statement is

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

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

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

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

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

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

Hence the correct statement is $\frac{3}{4x+3}=\frac{3}{4x+3}$.

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

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

Hence the correct statement is $\frac{4x+5}{4x}=1+\frac{5}{4x}$.

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

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

Hence the correct statement is $\frac{7x+5}{5}=\frac{7x}{5}+1$.

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