Factorisation - Lesson 1

Common Factors
(2 Terms, 2 Variables, Numerical Factor)

LI

- Factorise expressions of the form $ax + by$ (a, b numbers).

SC

- Times tables.
- Finding numerical factors.

Jan 10-12:11

A factor is a number that divides exactly into another number (no remainder)

Example 1

8

Factors : 1, 2, 4, 8

Example 2

10

Factors : 1, 2, 5, 10

Example 3

17

Factors : 1, 17

A common factor is a factor that is the same for two or more numbers

Example 4

8 and 10

Factors of 8 : 1, 2, 4, 8

Factors of 10 : 1, 2, 5, 10

Common factors : 1, 2

Example 5

3 and 21

Factors of 3 : 1, 3

Factors of 21 : 1, 3, 7, 21

Common factors : 1, 3

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Factorising Expressions

(Look for the Highest Common Factor)

(Biggest common factor in both)

Example 6

Factorise $3x - 6$.

$= \boxed{3(x - 2)}$

Example 7

Factorise $32 + 8w$.

$= \boxed{8(4 + w)}$

Example 8

Factorise $15y + 100z$.

$= \boxed{5(3y + 20z)}$

Example 9

Factorise $12k - 60w$.

$= \boxed{12(k - 5w)}$

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1. $2a + 2b$	**2.** $8c + 8d$	**3.** $3m + 3n$
4. $9x - 9y$	**5.** $5u - 5v$	**6.** $12p - 12q$
7. $2a + 6b$	**8.** $2c + 10d$	**9.** $3m + 12n$
10. $3p + 21q$	**11.** $5u + 10v$	**12.** $5x + 25y$
13. $3b - 15c$	**14.** $3d - 24e$	**15.** $4r - 12s$
16. $4y - 20z$	**17.** $6m - 18n$	**18.** $6t - 30u$
19. $8x + 2y$	**20.** $12u + 2v$	**21.** $18p + 3q$
22. $30m + 3n$	**23.** $24a + 6b$	**24.** $36c + 6d$
25. $8m - 4n$	**26.** $16p - 4q$	**27.** $15r - 5s$
28. $40x - 5y$	**29.** $21u - 7v$	**30.** $35k - 7l$
31. $4a + 6b$	**32.** $8c + 10d$	**33.** $6m + 9n$
34. $9p + 21q$	**35.** $10r + 15s$	**36.** $6u - 10v$
37. $10x - 14y$	**38.** $9b - 15c$	**39.** $10d - 25e$
40. $20k - 35l$	**41.** $14x + 8y$	**42.** $16u + 10v$

Answers

1. $2a + 2b$ 2 (a + b)	2. $8c + 8d$ 8 (c + d)	3. $3m + 3n$ 3 (m + n)
4. $9x - 9y$ 9 (x – y)	5. $5u - 5v$ 5 (u – v)	6. $12p - 12q$ 12 (p – q)
7. $2a + 6b$ 2 (a + 3b)	8. $2c + 10d$ 2 (c + 5d)	9. $3m + 12n$ 3 (m + 4n)
10. $3p + 21q$ 3 (p + 7q)	11. $5u + 10v$ 5 (u + 2v)	12. $5x + 25y$ 5 (x + 5y)
13. $3b - 15c$ 3 (b – 5c)	14. $3d - 24e$ 3 (d – 8e)	15. $4r - 12s$ 4 (r – 3s)
16. $4y - 20z$ 4 (y – 5z)	17. $6m - 18n$ 6 (m – 3n)	18. $6t - 30u$ 6 (t – 5u)
19. $8x + 2y$ 2 (4x + y)	20. $12u + 2v$ 2 (6u + v)	21. $18p + 3q$ 3 (6p + q)
22. $30m + 3n$ 3 (10m + n)	23. $24a + 6b$ 6 (4a + b)	24. $36c + 6d$ 6 (6c + d)
25. $8m - 4n$ 4 (2m – n)	26. $16p - 4q$ 4 (4p – q)	27. $15r - 5s$ 5 (3r – s)
28. $40x - 5y$ 5 (8x – y)	29. $21u - 7v$ 7 (3u – v)	30. $35k - 7l$ 7 (5k – l)
31. $4a + 6b$ 2 (2a + 3b)	32. $8c + 10d$ 2 (4c + 5d)	33. $6m + 9n$ 3 (2m + 3n)
34. $9p + 21q$ 3 (3p + 7q)	35. $10r + 15s$ 5 (2r + 3s)	36. $6u - 10v$ 2 (3u – 5v)
37. $10x - 14y$ 2 (5x – 7y)	38. $9b - 15c$ 3 (3b – 5c)	39. $10d - 25e$ 5 (2d – 5e)
40. $20k - 35l$ 5 (4k – 7l)	41. $14x + 8y$ 2 (7x + 4y)	42. $16u + 10v$ 2 (8u + 5v)

Factorise these :

1) $3x - 24$
2) $4x + 44$
3) $5x - 45$
4) $6x + 72$
5) $7x - 56$
6) $8x + 72$
7) $9x - 63$
8) $10x + 110$
9) $11x - 88$
10) $12x + 132$
11) $51 - 3x$
12) $36 + 4y$
13) $7r - 84$
14) $65 - 13q$
15) $14d + 42$
16) $6x + 32$
17) $12 - 8w$
18) $18t + 26$
19) $65 - 10n$
20) $2 \text{ million } p + 4$

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Answers

1) $3(x - 8)$
2) $4(x + 11)$
3) $5(x - 9)$
4) $6(x + 12)$
5) $7(x - 8)$
6) $8(x + 9)$
7) $9(x - 7)$
8) $10(x + 11)$
9) $11(x - 8)$
10) $12(x + 11)$
11) $3(17 - x)$
12) $4(9 + y)$
13) $7(r - 12)$
14) $13(5 - q)$
15) $14(d + 3)$
16) $2(3x + 16)$
17) $4(3 - 2w)$
18) $2(9t + 13)$
19) $5(13 - 2n)$
20) $4(500\,000p + 1)$